



Advanced Excel

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About the Tutorial

Advanced Excel is a comprehensive tutorial that provides a good insight into the latest and advanced features available in Microsoft Excel 2013. It has plenty of screenshots that explain how to use a particular feature, in a step-by-step manner.

Audience

This tutorial has been designed for all those readers who depend heavily on MS-Excel to prepare charts, tables, and professional reports that involve complex data. It will help all those readers who use MS-Excel regularly to analyze data.

Prerequisites

The readers of this tutorial are expected to have a good prior understanding of the basic features available in Microsoft Excel.

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Table of Contents

About the Tutorial	i
Audience.....	i
Prerequisites.....	i
Copyright & Disclaimer	i
Table of Contents	ii
PART 1: EXCEL NEW FEATURES	1
1. Excel – Chart Recommendations	2
Change in Charts Group.....	2
Chart Recommendations	3
Fine Tune Charts Quickly	5
Select / De-select Chart Elements	6
Format Style	7
Format Color.....	8
Filter Data being displayed on the Chart.....	9
2. Excel – Format Charts	12
Format Axis.....	12
Provision for Combo Charts.....	15
3. Excel – Chart Design	17
Ribbon of Chart Tools	17
Quick Layout.....	19
Change Colors.....	20
Chart Styles.....	20
Switch Row / Column	21
Select Data.....	22
Change Chart Type	23
Move Chart.....	24
4. Excel – Richer Data Labels	26
Formatting Data Labels	26
Look of the Data Labels	30
Shape of a Data Label	31
Resize a Data Label	32
Add a Field to a Data Label	32
5. Excel – Leader Lines	35
Add a Leader Line	35
Format Leader Lines	36
6. Excel – New Functions.....	38
Functions by Category	38
New Functions in Excel 2013	39
User Defined Functions in Add-ins	42
Web Functions.....	42

PART 2: FUNDAMENTAL DATA ANALYSIS	43
7. Instant Data Analysis	44
Quick Analysis Features	44
Quick Analysis of Data	44
Conditional Formatting	46
Charts	50
Totals	52
Tables	58
Sparklines	60
8. Excel – Sorting Data by Color	62
9. Excel – Slicers.....	65
10. Excel – Flash Fill	68
PART 3: POWERFUL DATA ANALYSIS – INTRODUCTION	72
11. Excel – PivotTable Recommendations.....	73
Create a PivotTable to analyze external data	74
Connect to a new external data source.....	76
Using the Field List option	78
PivotTables based on Multiple Tables	82
PART 4: POWERFUL DATA ANALYSIS – 1	85
12. Excel – Data Model in Excel.....	86
Explore Data Using PivotTable	89
Create Relationship between Tables.....	91
13. Excel – Power Pivot.....	95
Data Model using Calculated Columns.....	99
Relationship using calculated columns.....	103
14. Excel – External Data Connection.....	105
Update the Data Connections	106
Automatically Refresh Data.....	107
Automatically refresh data at regular intervals.....	109
Enable Background Refresh.....	109
15. Excel – Pivot Table Tools	111
Source Data for a PivotTable	111
Change to a Different External Data Source.....	112
Delete a PivotTable.....	114
Using the Timeline	117
Use a Timeline to Filter by Time Period.....	119
Create a Standalone PivotChart	122

PART 5: POWERFUL DATA ANALYSIS – 2	124
16. Excel – Power View	125
Create a Power View Sheet	125
17. Excel – Visualizations	129
Create Charts and other Visualizations	129
Visualization – Matrix	130
Visualization – Card	131
Visualization – Charts	132
18. Excel – Pie Charts	138
Bubble and Scatter Charts	140
Maps	143
Multiples: A Set of Charts with the Same Axes	145
Visualization – Tiles	147
19. Power View – Additional Features	150
Modify the internal Data Model	150
20. Excel – Power View in Services.....	155
Key Performance Indicators (KPIs)	155
Hierarchies.....	156
Drill-Up and Drill-Down	157
21. Excel – Format Reports	161
Hyperlinks.....	173
Printing	173
Support for right-to-left languages.....	173
22. Excel – Handling Integers	176
Power Query.....	177
Power BI Desktop	178
PART 6: OTHER FEATURES.....	181
23. Excel – Templates	182
24. Excel – Inquire.....	186
Ensure Inquire Add-in is Active.....	186
Compare Two Workbooks	188
25. Excel – Workbook Analysis.....	194
Diagrams.....	198
Workbook Relationship	199
Worksheet Relationship	200
Cell Relationship	201
Clean Excess Cell Formatting	203
26. Excel – Manage Passwords.....	205
Embed Worksheet Data in a Web Page.....	207

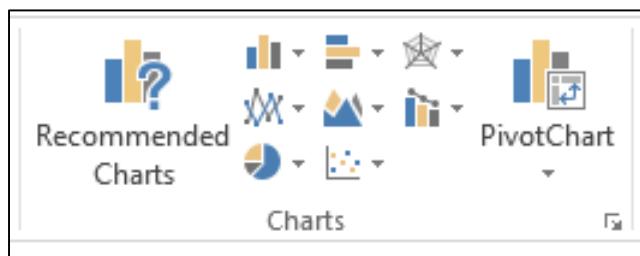
27. Excel – File Formats.....	208
Save a Workbook in another File Format	208
Excel File Formats.....	208
Text File Formats	209
Other File Formats.....	210
File Formats that Use the Clipboard	213
File Formats not Supported in Excel 2013	214
28. Excel – Discontinued Features.....	215
Discontinued / Changed features	215
Save Workspace	215
New from Existing	215
Save as Template.....	216
Split Box Control.....	219
Blank Workbook	220
Save Options.....	221
Microsoft Clip Organizer.....	222
MS Office Picture Manager	222
Exit option	222
Browser View Options	224
Individual Data Series	225
Pyramid and Cone Chart Types	225

Part 1: Excel New Features

1. Excel – Chart Recommendations

Change in Charts Group

The Charts Group on the Ribbon in MS Excel 2013 looks as follows:



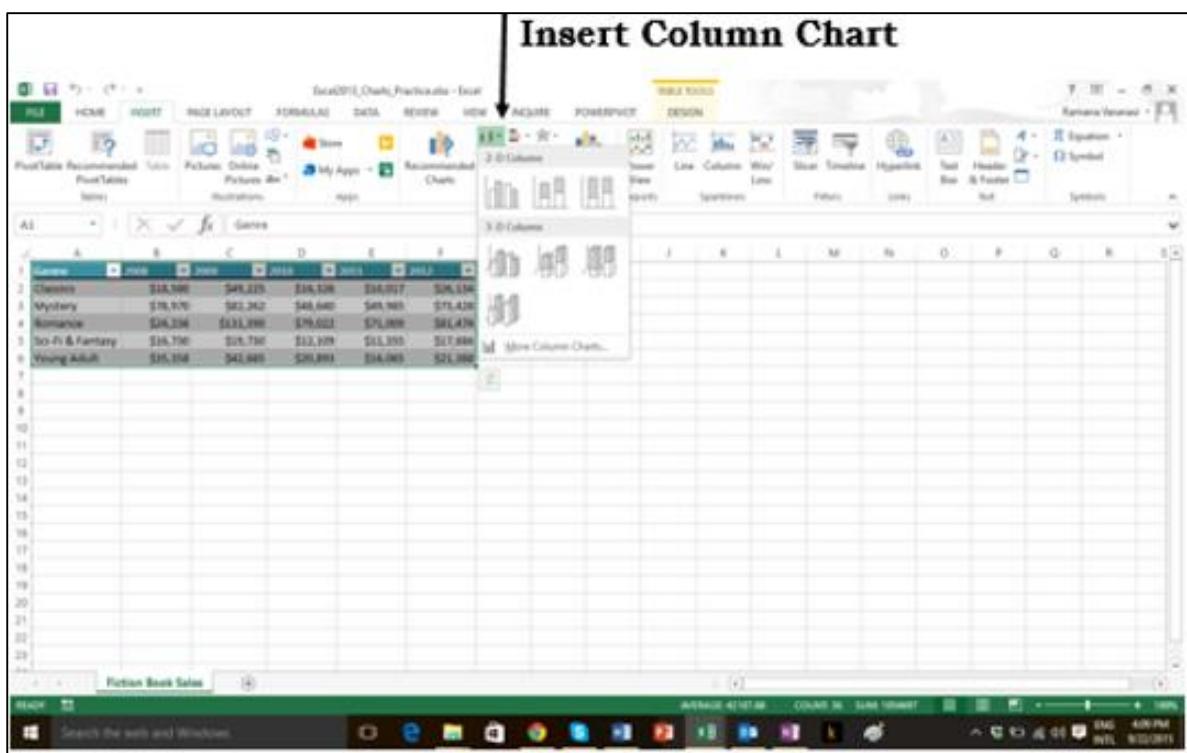
You can observe that:

- The subgroups are clubbed together.
- A new option '**Recommended Charts**' is added.

Let us create a chart. Follow the steps given below.

Step 1: Select the data for which you want to create a chart.

Step 2: Click on the **Insert Column Chart** icon as shown below.



When you click on the **Insert Column chart**, types of **2-D Column Charts**, and **3-D Column Charts** are displayed. You can also see the option of More **Column Charts**.

Step 3: If you are sure of which chart you have to use, you can choose a Chart and proceed.

If you find that the one you pick is not working well for your data, the new **Recommended Charts** command on the **Insert** tab helps you to create a chart quickly that is just right for your data.

The screenshot shows the Microsoft Excel ribbon with the 'INSERT' tab selected. In the 'CHARTS' group, there is a 'Recommended Charts' button. Below the ribbon, a data table is visible with columns labeled 2008 through 2012 and rows 1 through 6. The data is as follows:

	2008	2009	2010	2011	2012
1	\$18,580	\$49,225	\$16,326	\$10,017	\$26,134
2	\$78,970	\$82,262	\$48,640	\$49,985	\$73,428
3	\$24,236	\$131,390	\$79,022	\$71,009	\$81,474
4	\$16,730	\$19,730	\$12,109	\$11,355	\$17,686
5	\$35,358	\$42,685	\$20,893	\$16,065	\$21,388
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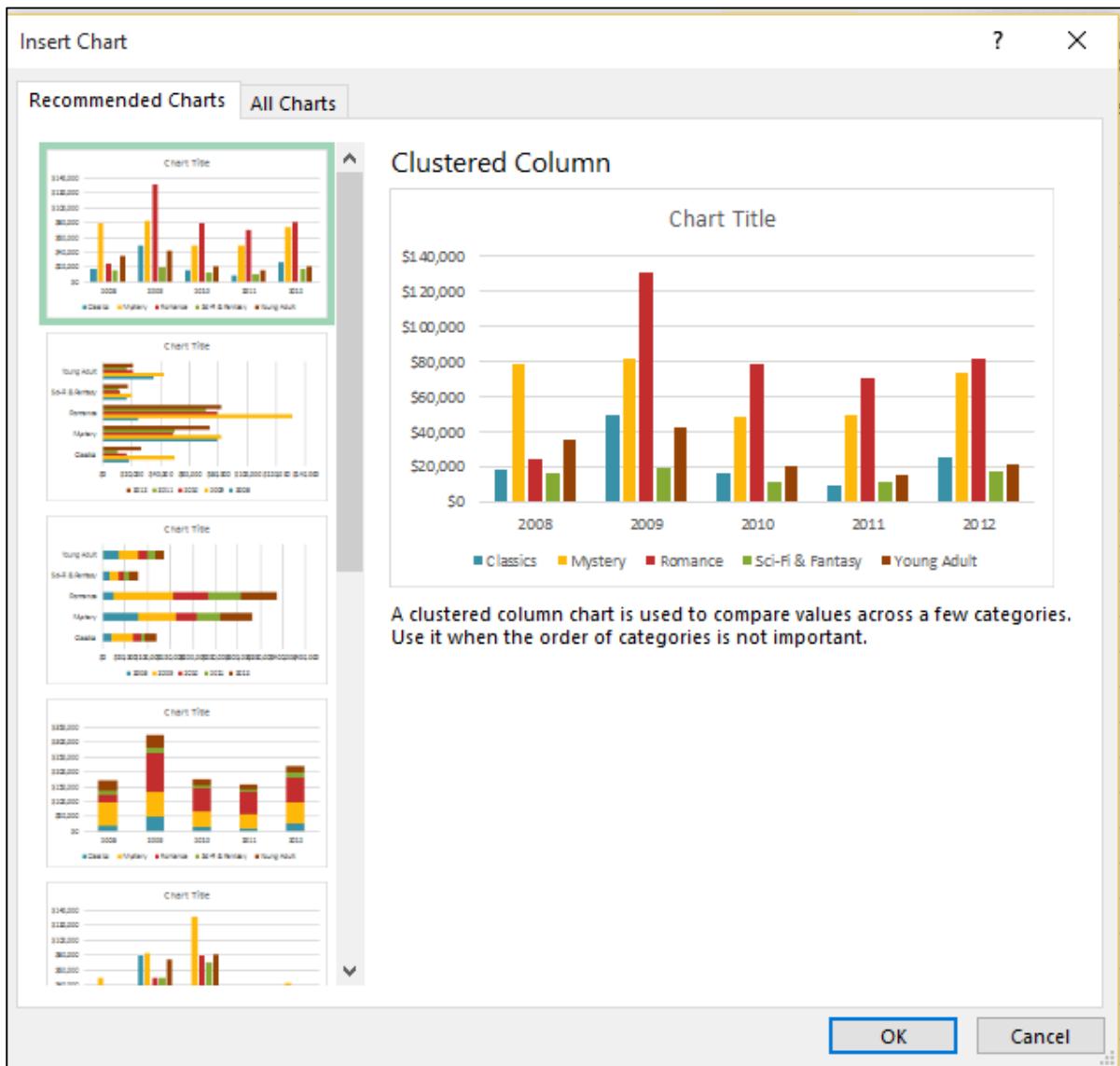
Chart Recommendations

Let us see the options available under this heading. (use another word for heading)

Step 1: Select the Data from the worksheet.

Step 2: Click on **Recommended Charts**.

The following window displaying the charts that suit your data will be displayed.



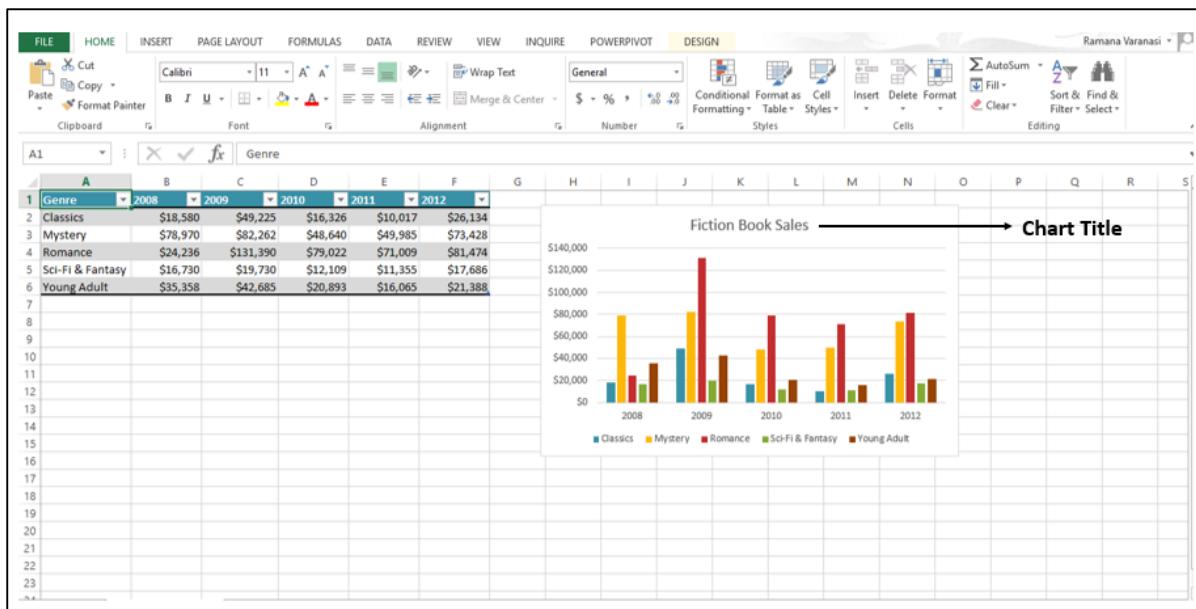
Step 3: As you browse through the **Recommended Charts**, you will see the preview on the right side.

Step 4: If you find the chart you like, click on it.

Step 5: Click on the **OK** button. If you do not see a chart you like, click on **All Charts** to see all the available chart types.

Step 6: The chart will be displayed in your worksheet.

Step 7: Give a **Title** to the chart.



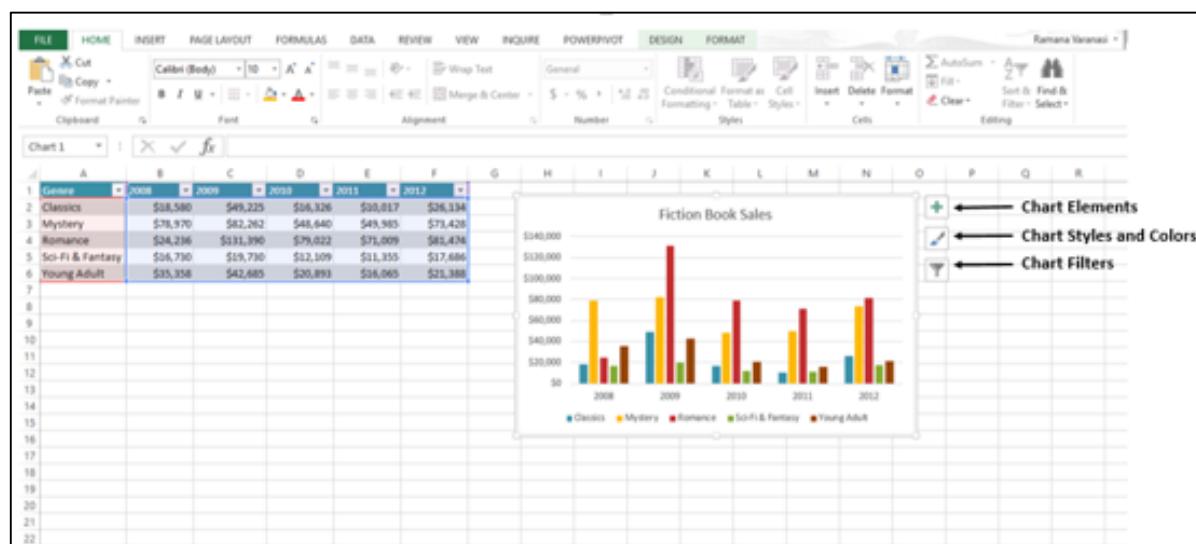
Fine Tune Charts Quickly

Click on the Chart. Three Buttons appear next to the upper-right corner of the chart. They are:

- Chart Elements
- Chart Styles and Colors, and
- Chart Filters

You can use these buttons-

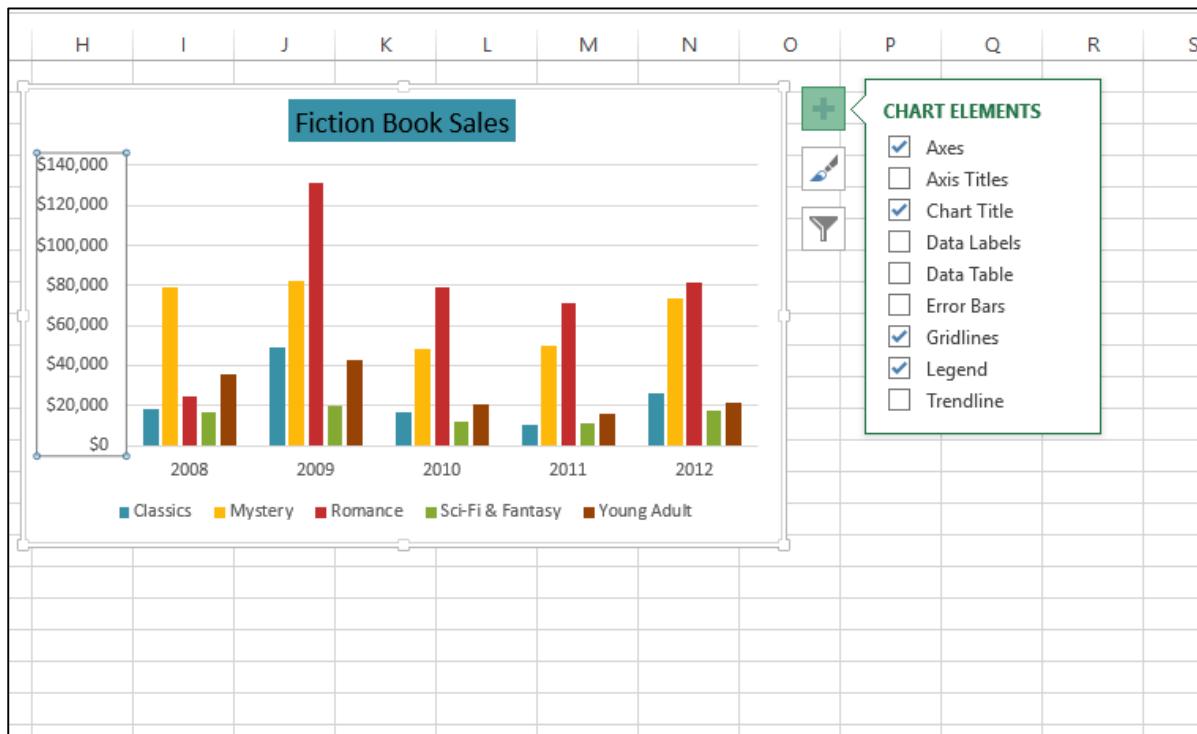
- To add chart elements like axis titles or data labels
- To customize the look of the chart, or
- To change the data that's shown in the chart



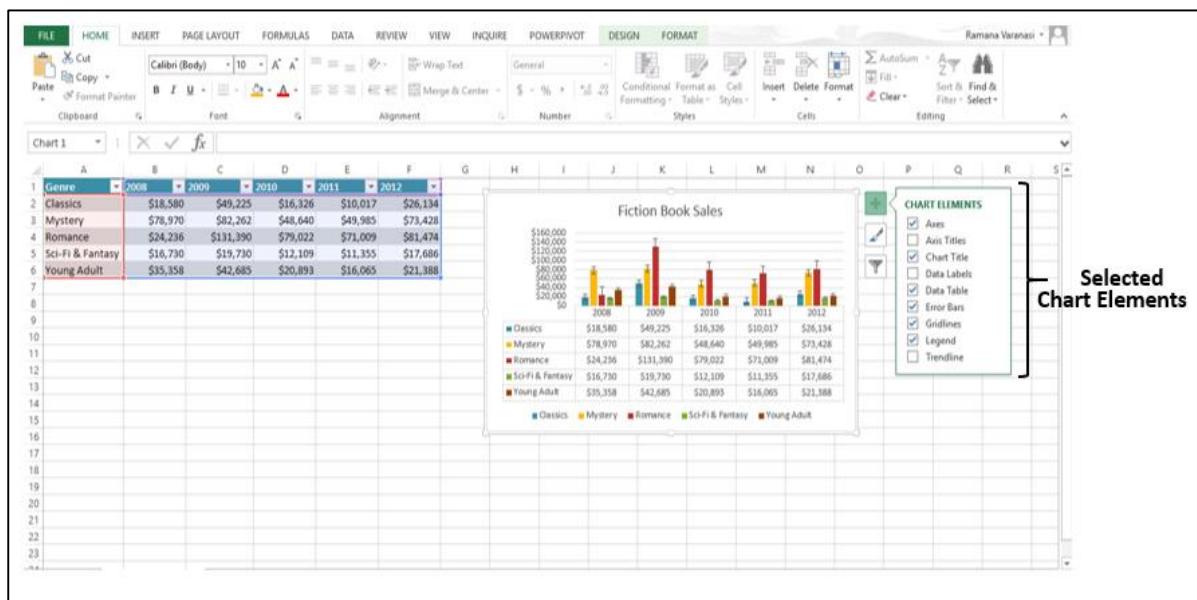
Select / De-select Chart Elements

Step 1: Click on the Chart. Three Buttons will appear at the upper-right corner of the chart.

Step 2: Click on the first button **Chart Elements**. A list of chart elements will be displayed under the **Chart Elements** option.



Step 3: Select / De-select **Chart Elements** from the given List. Only the selected chart elements will be displayed on the Chart.

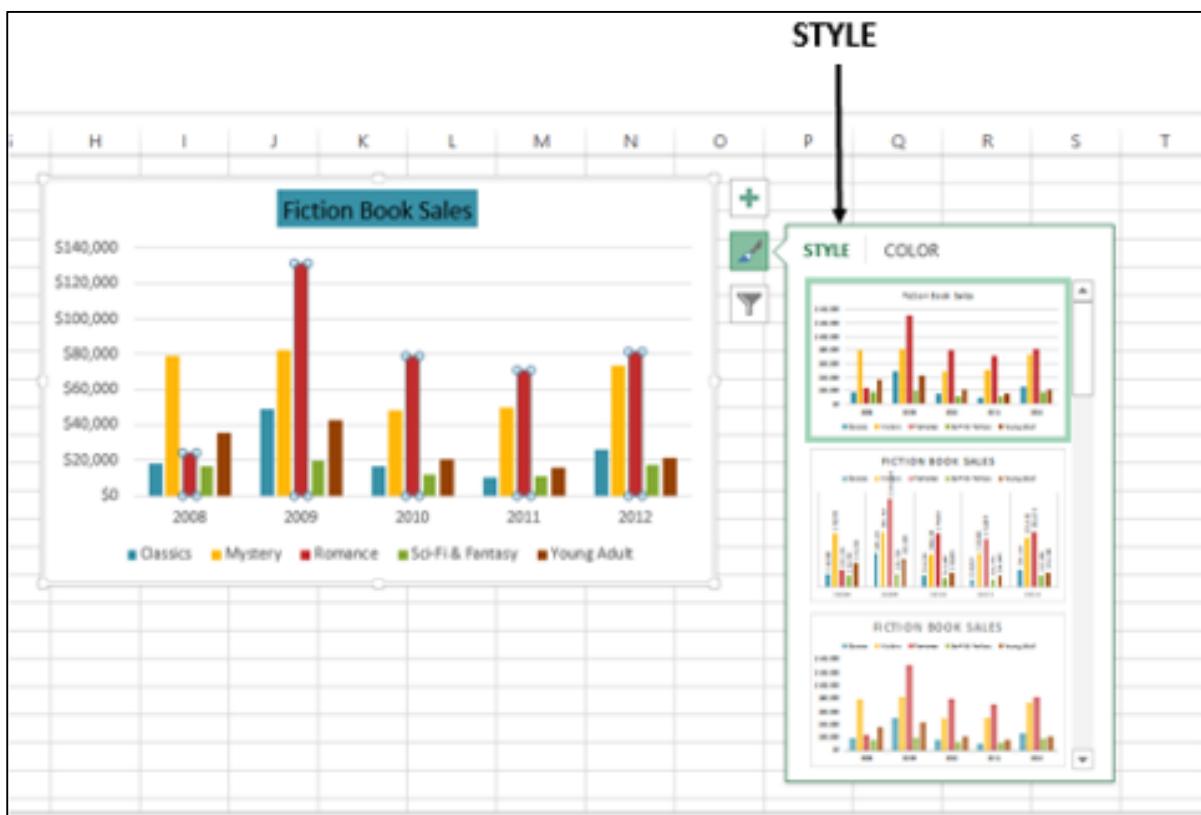


Format Style

Step 1: Click on the **Chart**. Three Buttons will appear at the upper-right corner of the chart.

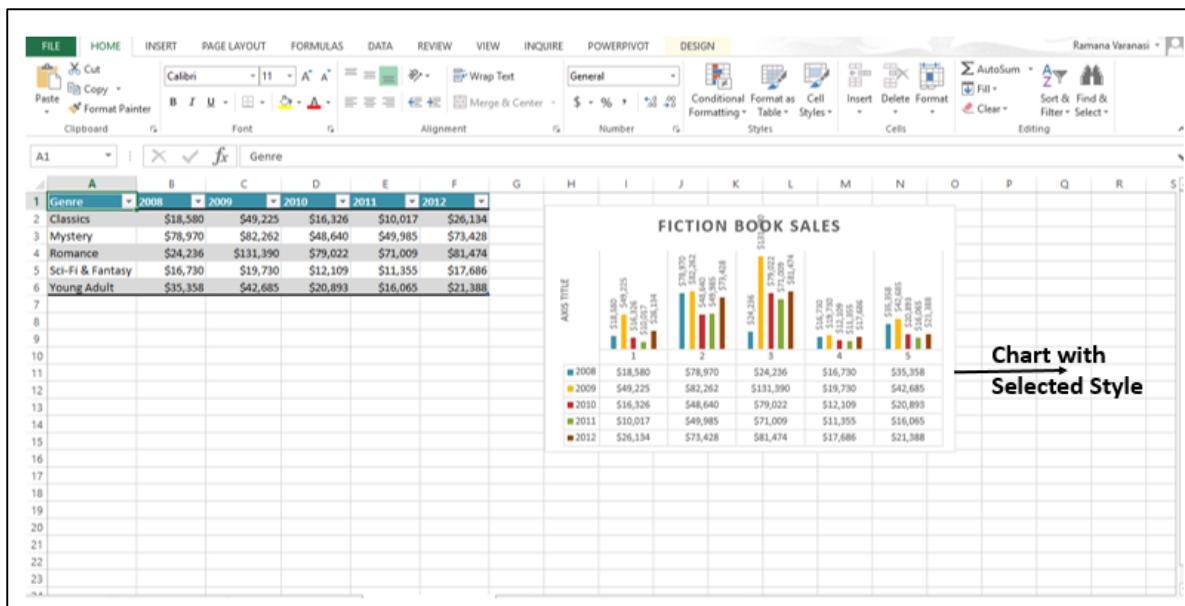
Step 2: Click on the second button **Chart Styles**. A small window opens with different options of **STYLE** and **COLOR** as shown in the image given below.

Step 3: Click on **STYLE**. Different options of Style will be displayed.



Step 4: Scroll down the gallery. The live preview will show you how your chart data will look with the currently selected style.

Step 5: Choose the Style option you want. The Chart will be displayed with the selected Style as shown in the image given below.

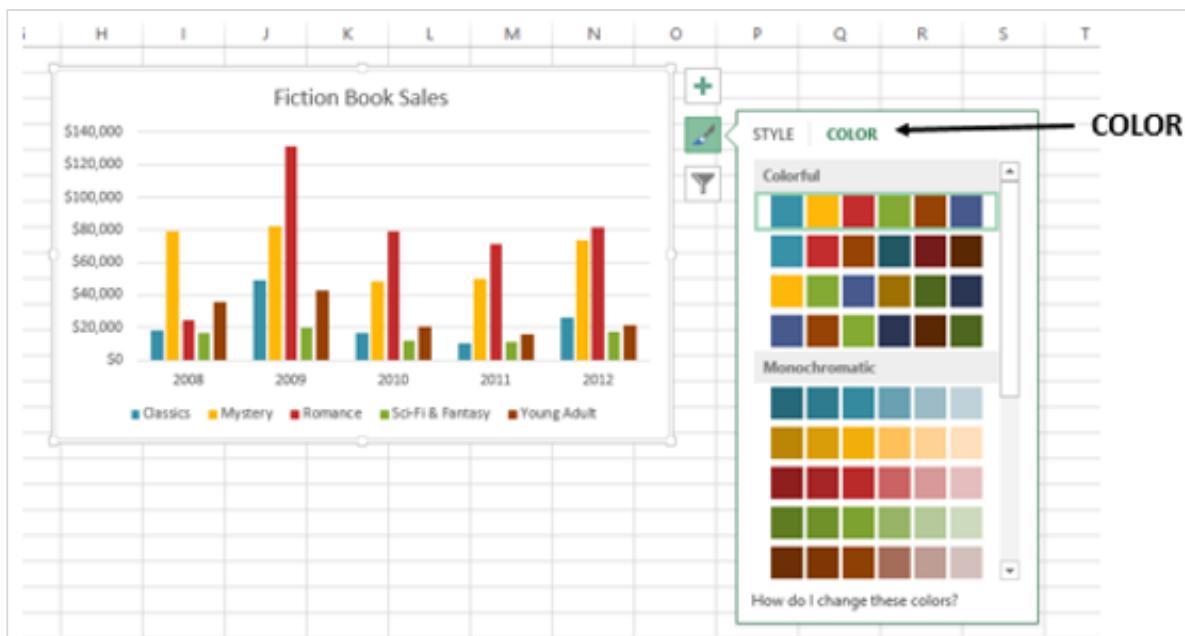


Format Color

Step 1: Click on the **Chart**. Three Buttons will appear at the upper-right corner of the chart.

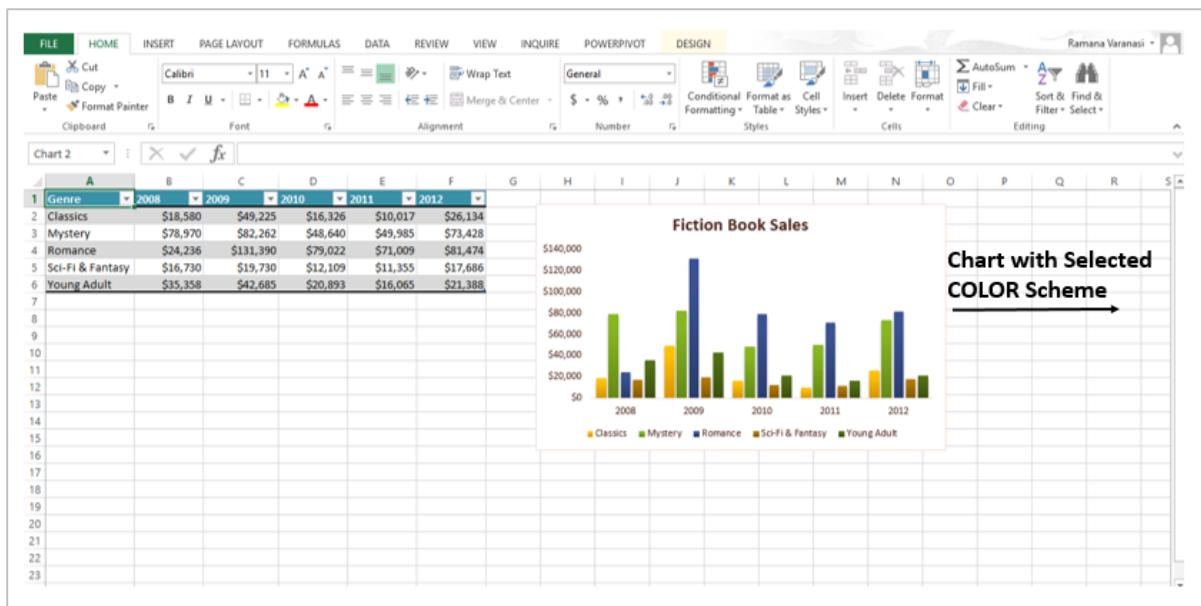
Step 2: Click on Chart Styles. The **STYLE** and **COLOR** window will be displayed.

Step 3: Click on the **COLOR** tab. Different Color Schemes will be displayed.



Step 4: Scroll down the options. The live preview will show you how your chart data will look with the currently selected color scheme.

Step 5: Pick the color scheme you want. Your Chart will be displayed with the selected Style and Color scheme as shown in the image given below.



You can change color schemes from Page Layout Tab also.

Step 1: Click the tab **Page Layout**.

Step 2: Click on the **Colors** button.

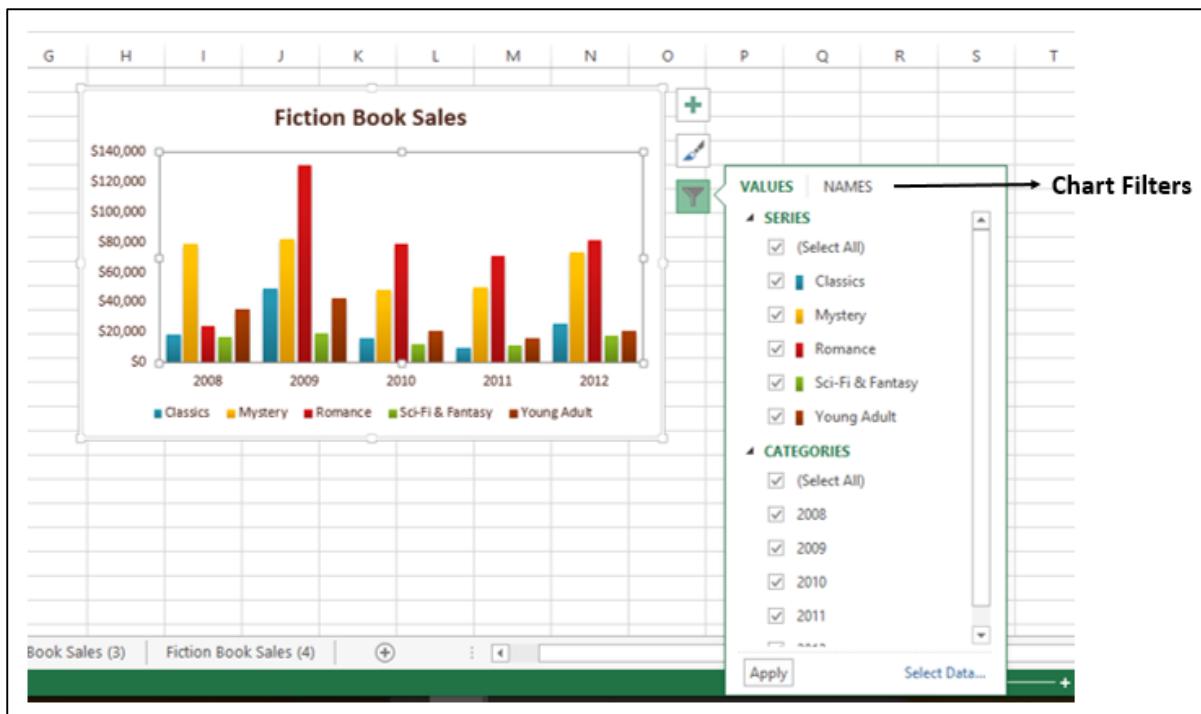
Step 3: Pick the color scheme you like. You can also customize the Colors and have your own color scheme.

Filter Data being displayed on the Chart

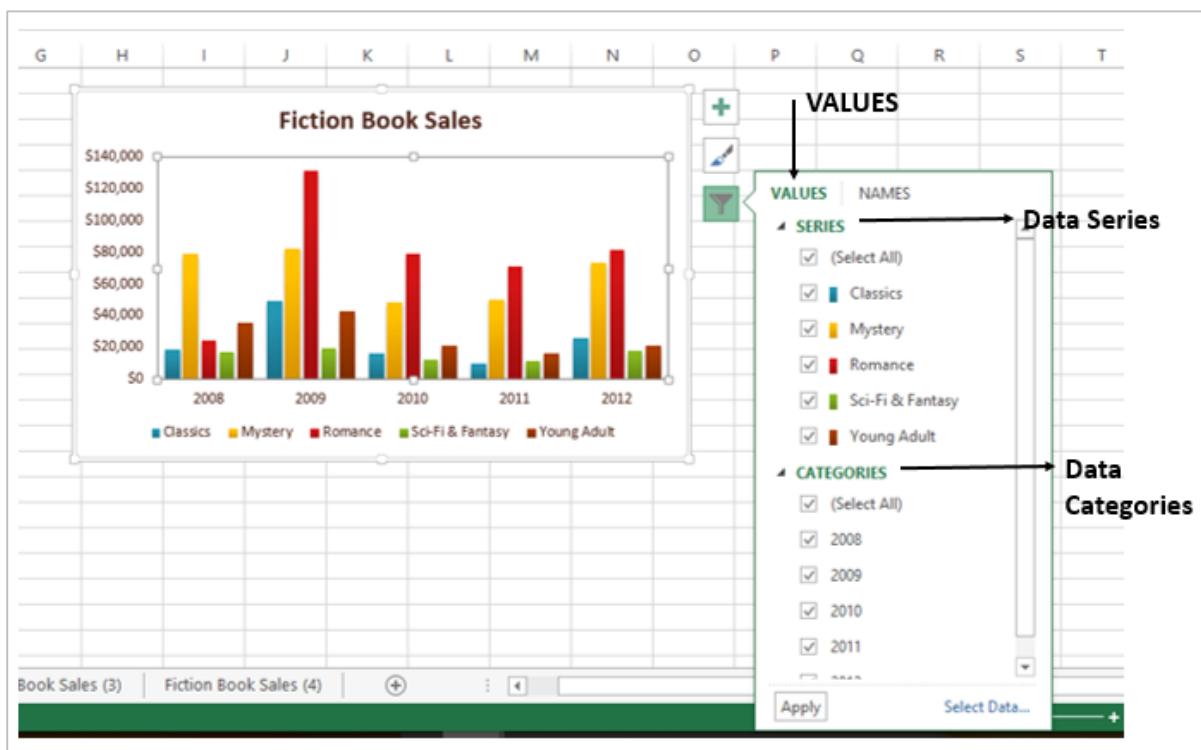
Chart Filters are used to edit the data points and names that are visible on the chart being displayed, dynamically.

Step 1: Click on the Chart. Three Buttons will appear at the upper-right corner of the chart.

Step 2: Click on the third button **Chart Filters** as shown in the image.

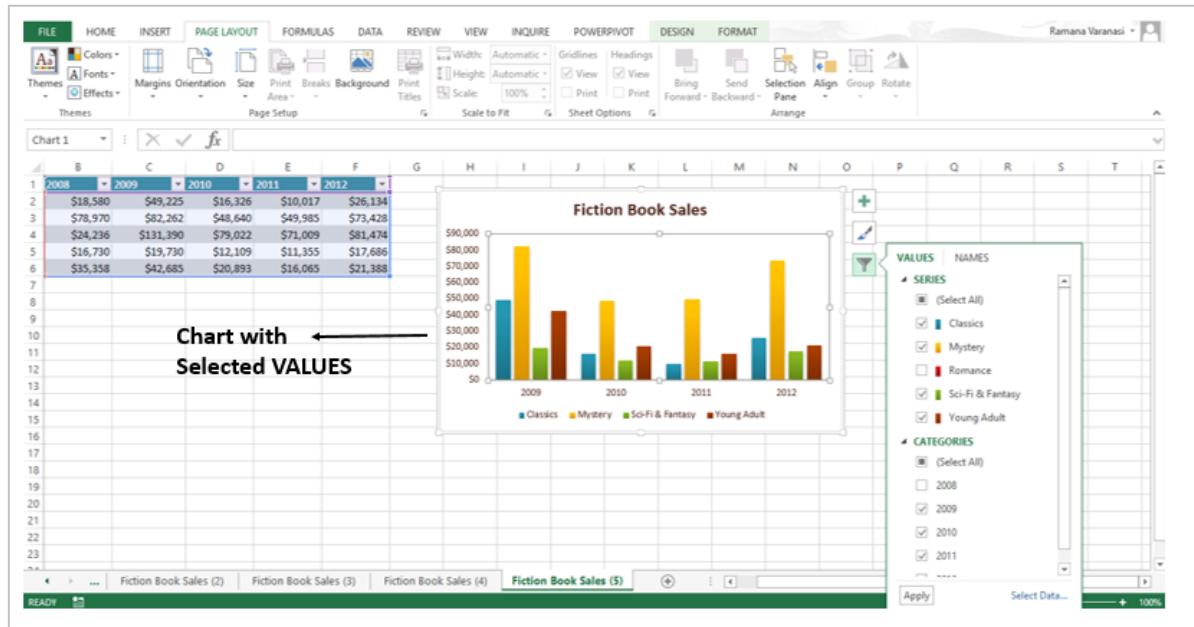


Step 3: Click on **VALUES**. The available **SERIES** and **CATEGORIES** in your Data appear.



Step 4: Select / De-select the options given under **Series** and **Categories**. The chart changes dynamically.

Step 5: After, you decide on the final Series and Categories, click on Apply. You can see that the chart is displayed with the selected data.



2. Excel – Format Charts

The **Format** pane is a new entry in Excel 2013. It provides advanced formatting options in clean, shiny, new task panes and it is quite handy too.

Step 1: Click on the Chart.

Step 2: Select the chart element (e.g., data series, axes, or titles).

Step 3: Right-click the chart element.

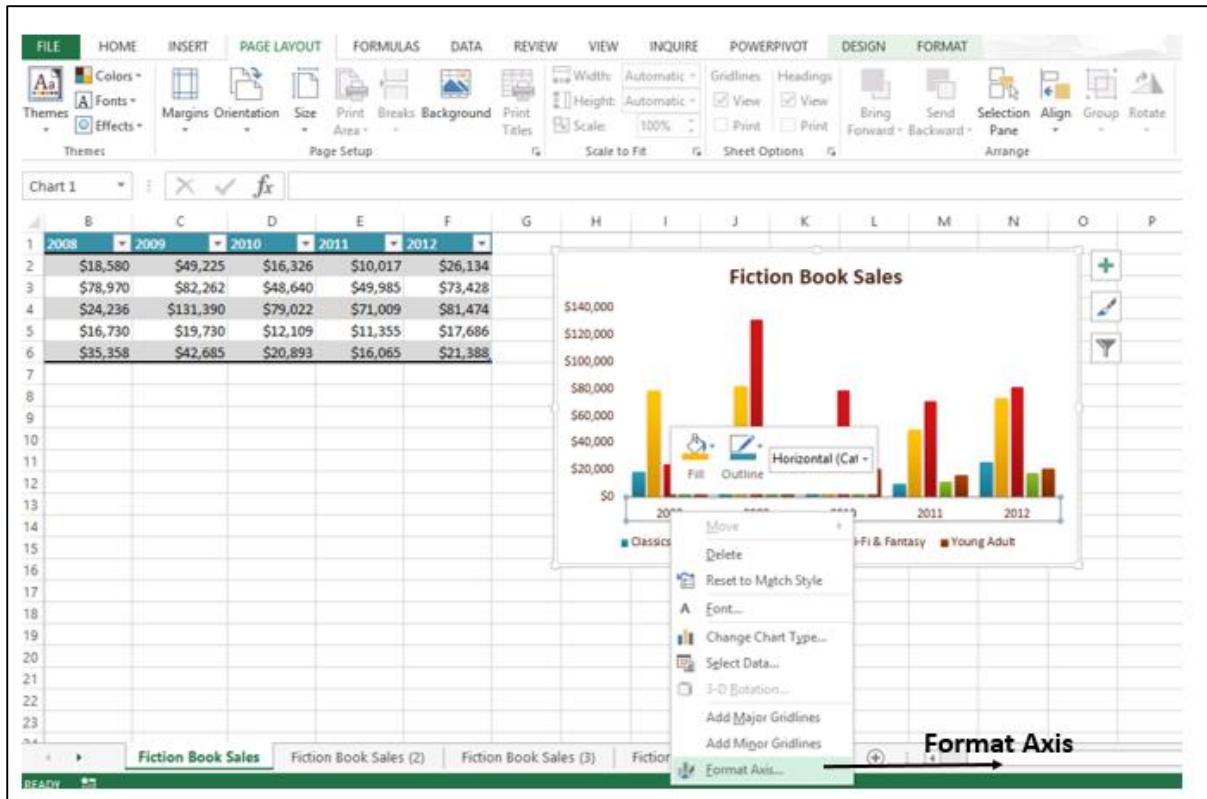
Step 4: Click **Format <chart element>**. The new **Format** pane appears with options that are tailored for the selected chart element.

Format Axis

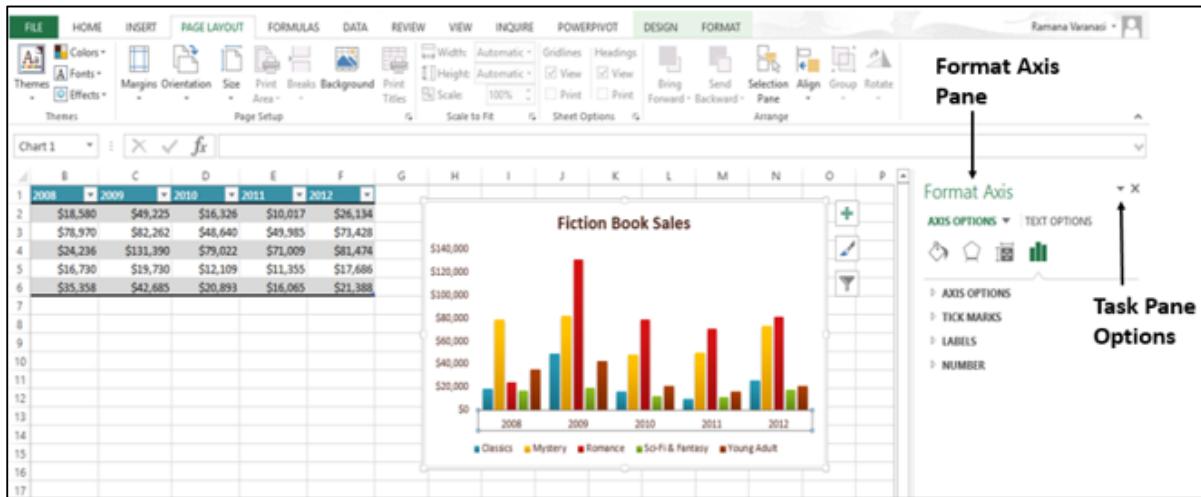
Step 1: Select the **chart axis**.

Step 2: Right-click the chart axis.

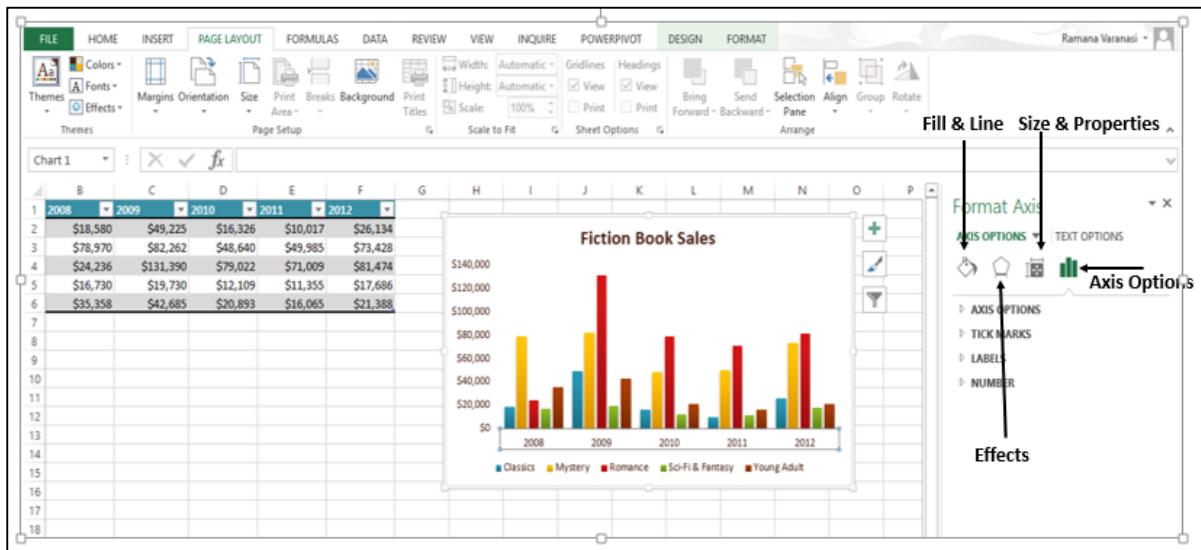
Step 3: Click **Format Axis**. The **Format Axis** task pane appears as shown in the image below.



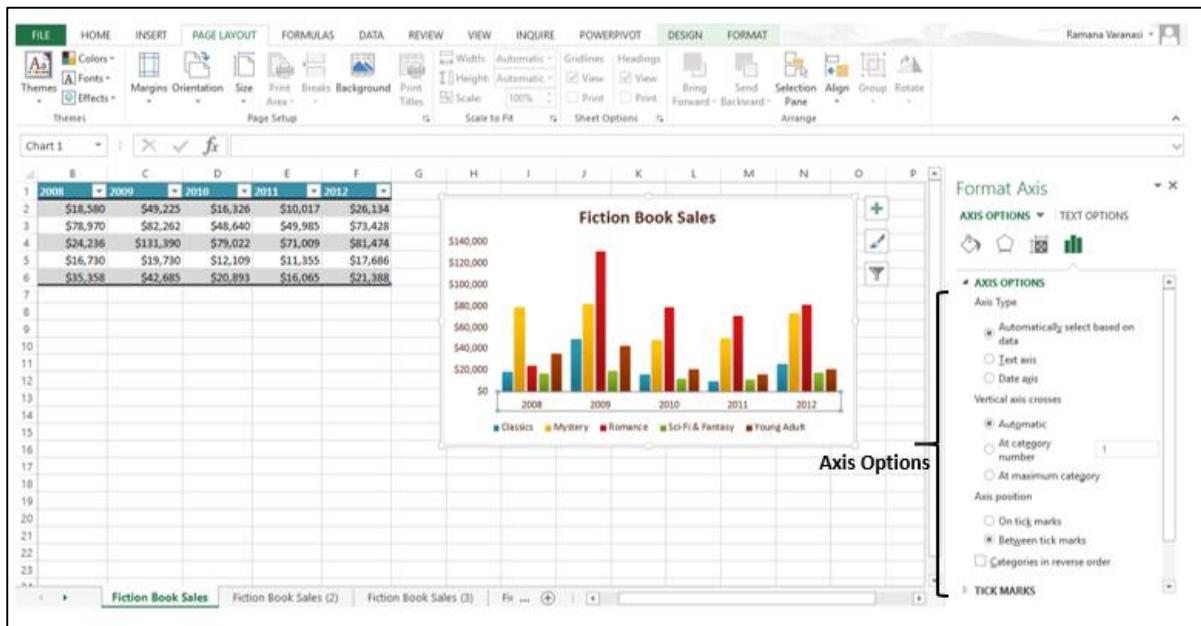
You can move or resize the task pane by clicking on the **Task Pane Options** to make working with it easier.



The small icons at the top of the pane are for more options.

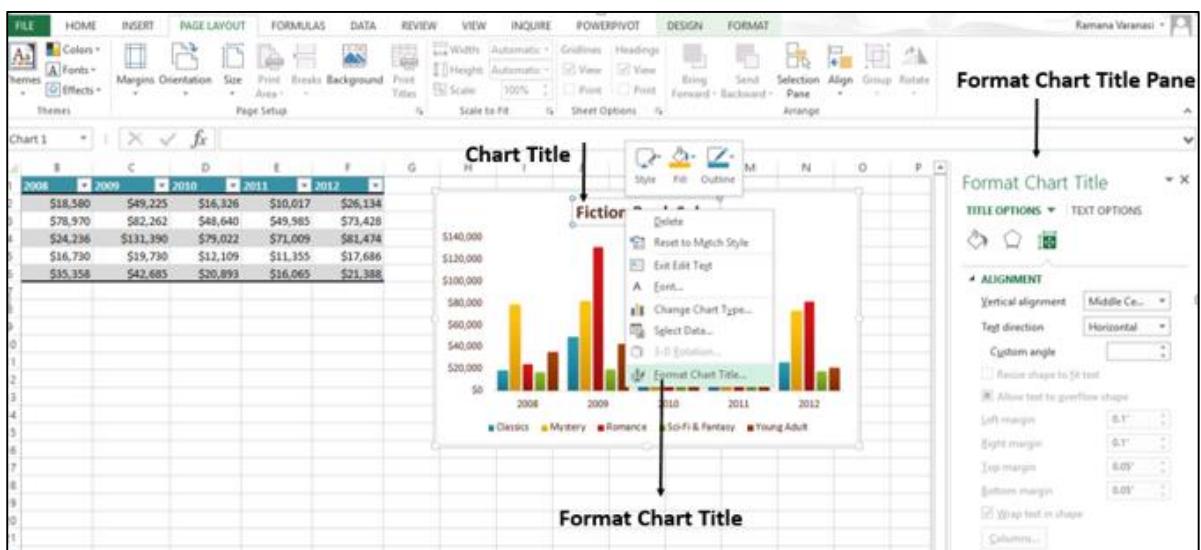


Step 4: Click on **Axis Options**.



Step 5: Select the required **Axis Options**. If you click on a different chart element, you will see that the task pane automatically updates to the new chart element.

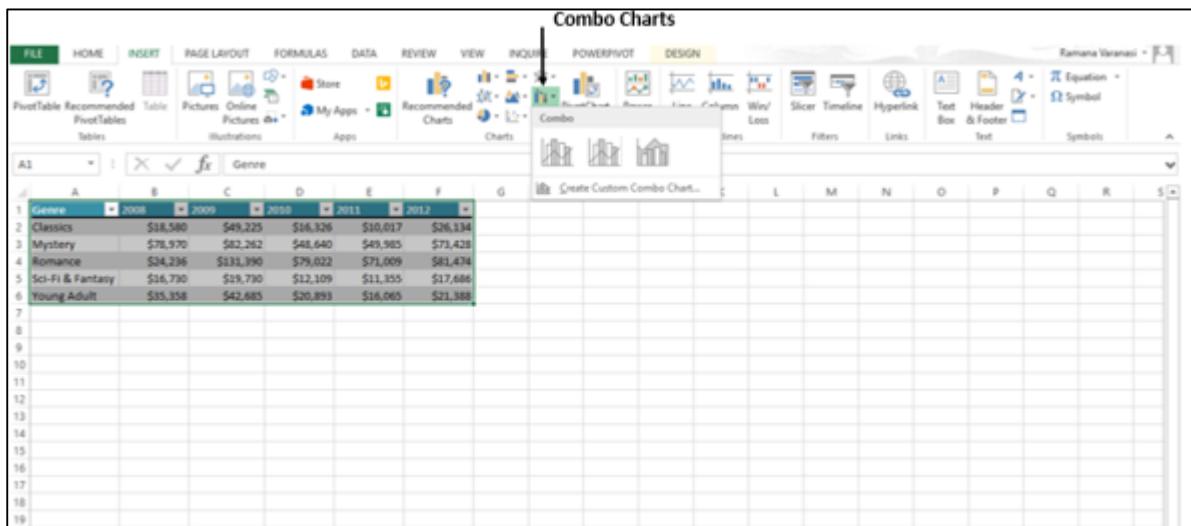
Step 6: Select the **Chart Title**.



Step 7: Select the required options for the **Title**. You can format all the Chart Elements using the **Format Task Pane** as explained for **Format Axis** and **Format Chart Title**.

Provision for Combo Charts

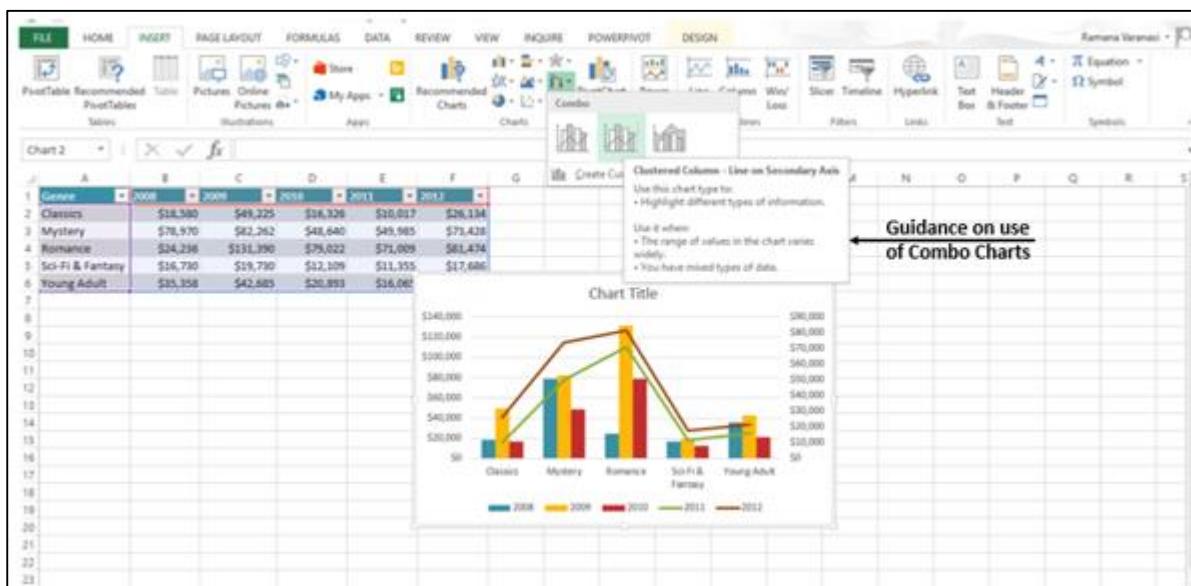
There is a new button for combo charts in Excel 2013.



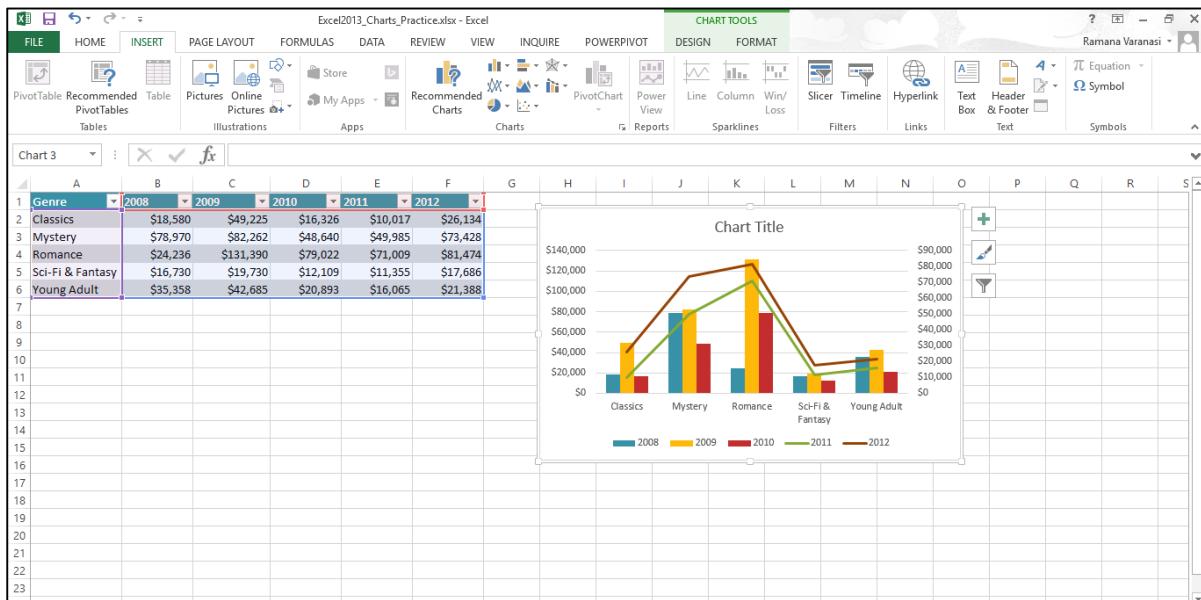
The following steps will show how to make a combo chart.

Step 1: Select the Data.

Step 2: Click on **Combo Charts**. As you scroll on the available Combo Charts, you will see the live preview of the chart. In addition, Excel displays guidance on the usage of that particular type of Combo Chart as shown in the image given below.



Step 3: Select a **Combo Chart** in the way you want the data to be displayed. The Combo Chart will be displayed.

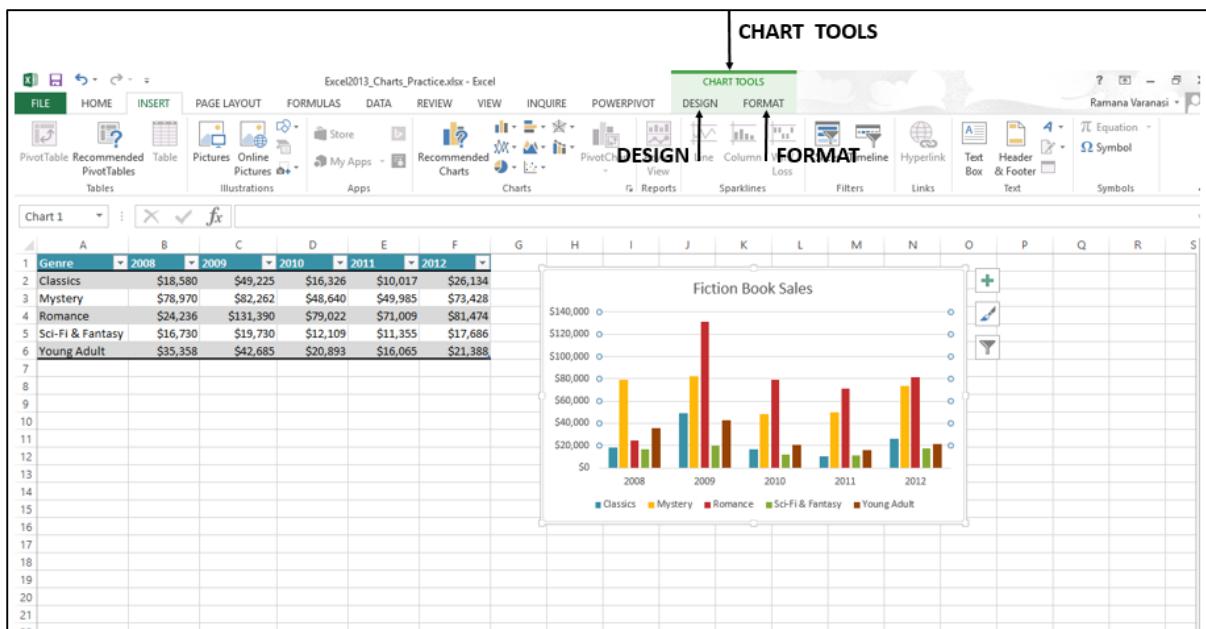


3. Excel – Chart Design

Ribbon of Chart Tools

When you click on your Chart, the **CHART TOOLS** tab, comprising of the **DESIGN** and **FORMAT** tabs is introduced on the ribbon.

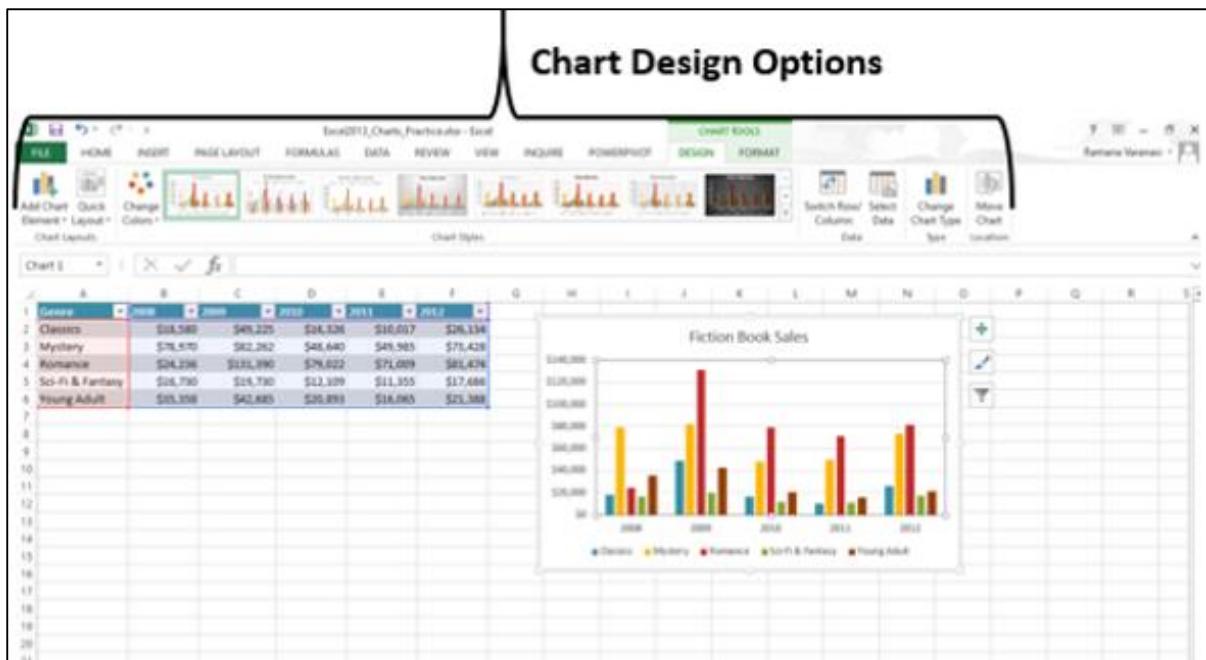
Step 1: Click on the Chart. **CHART TOOLS** with the **DESIGN** and **FORMAT** tabs will be displayed on the ribbon.



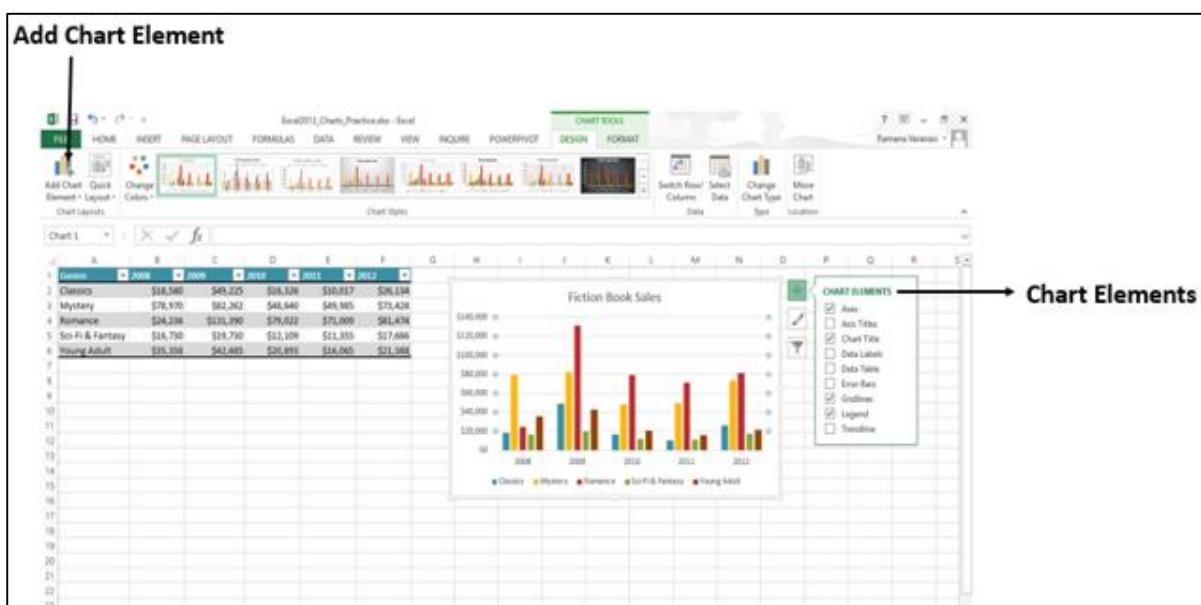
Let us understand the functions of the **DESIGN** tab.

Step 1: Click on the chart.

Step 2: Click on the **DESIGN** tab. The **Ribbon** now displays all the options of **Chart Design**.



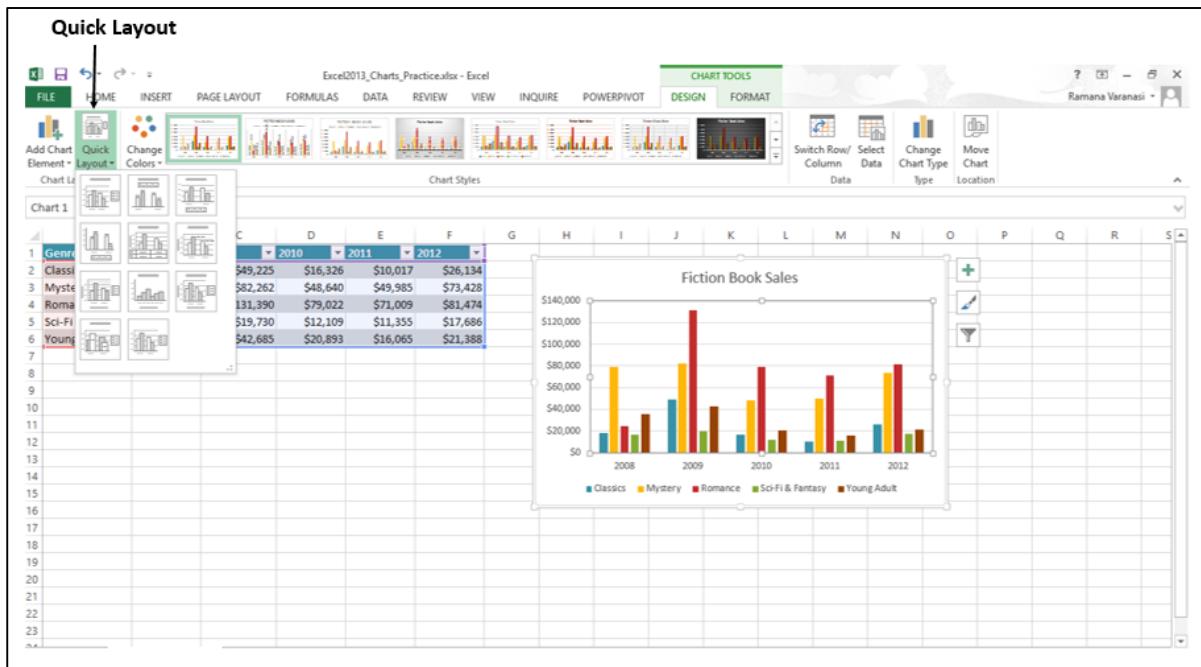
The first button on the ribbon is the **Add Chart Element**, which is the same as the **Chart Elements**, given at the upper right corner of the Charts as shown below.



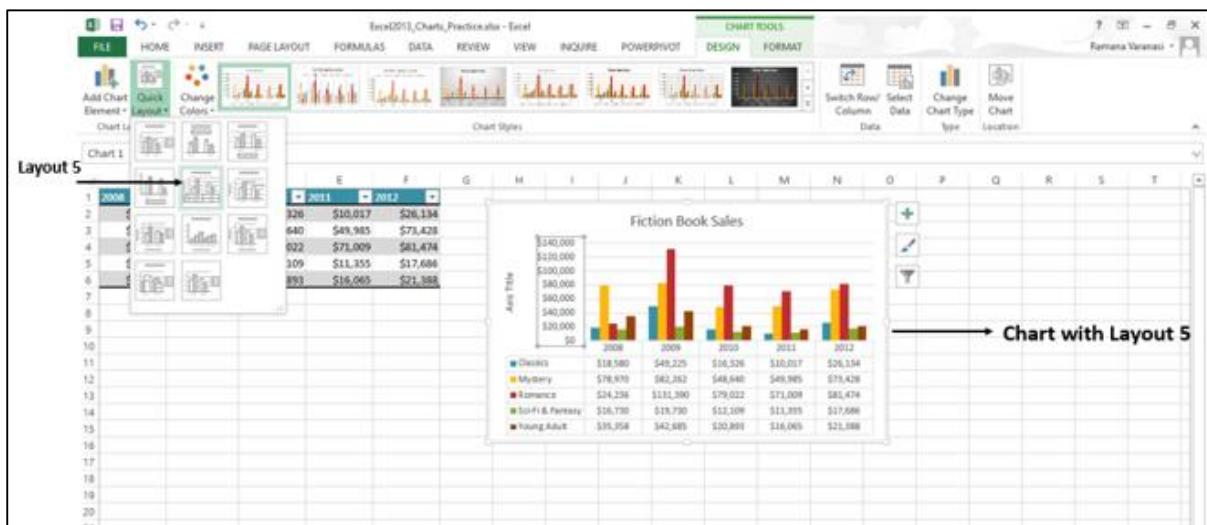
Quick Layout

You can use Quick Layout to change the overall layout of the Chart quickly by choosing one of the predefined layout options.

Step 1: Click on Quick Layout. Different possible layouts will be displayed.



Step 2: As you move on the layout options, the chart layout changes to that particular option. A preview of how your chart will look is shown.



Step 3: Click on the layout you like. The chart will be displayed with the chosen layout.

Change Colors

The **Change Colors** option is the same as in **CHART ELEMENTS -> Change Styles -> COLOR**.

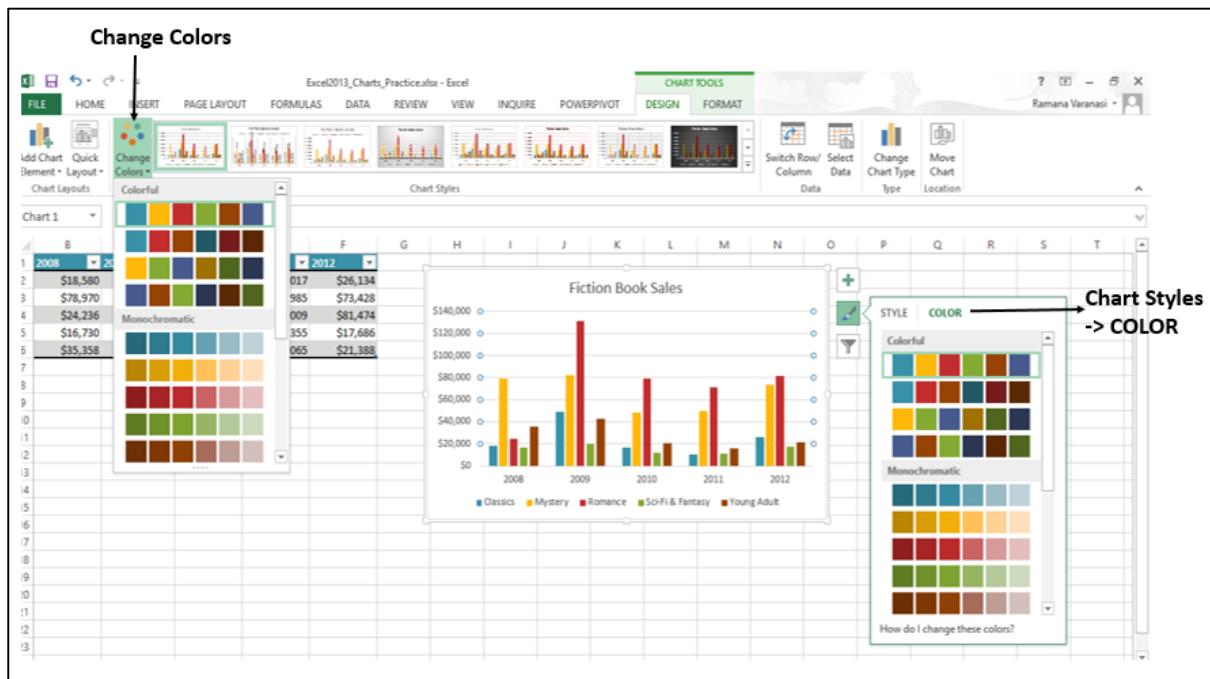
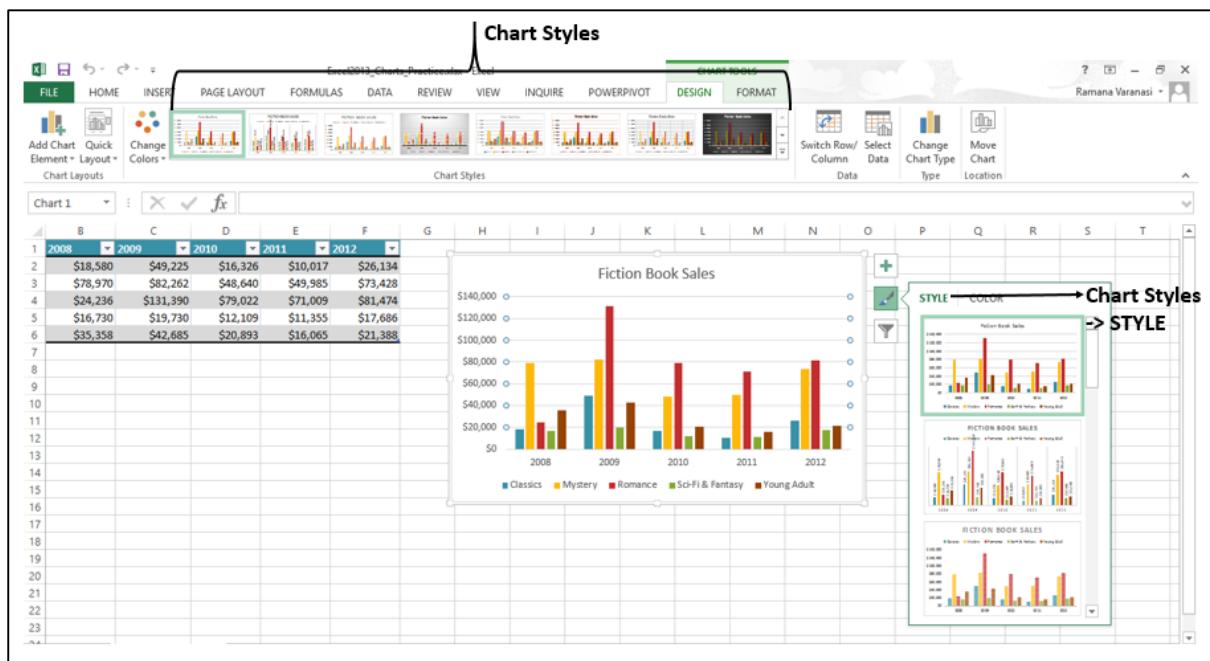


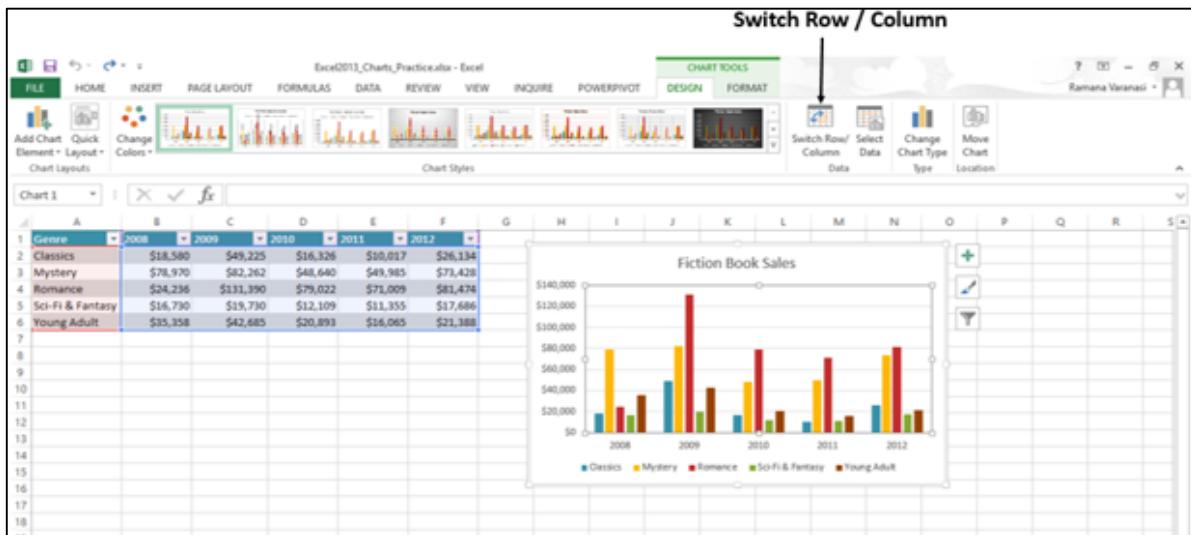
Chart Styles

The Chart Styles option is the same as in **CHART ELEMENTS -> Change Styles -> STYLE**.

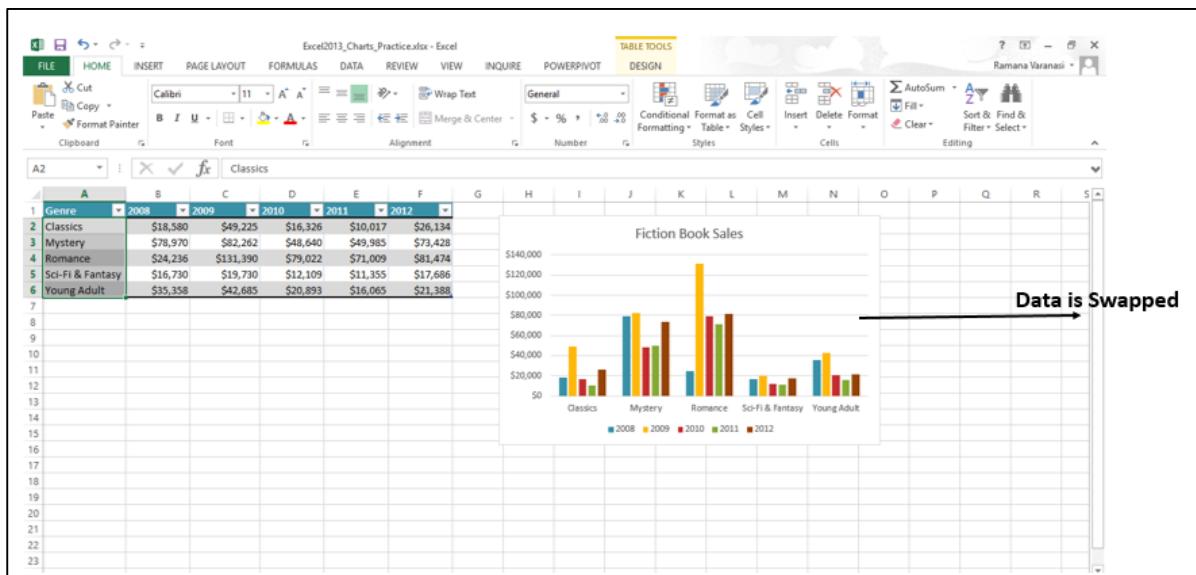


Switch Row / Column

You can use the **Switch Row / Column** button on the ribbon to change the display of data from X-axis to Y-axis and vice versa. Follow the steps given below to understand this.

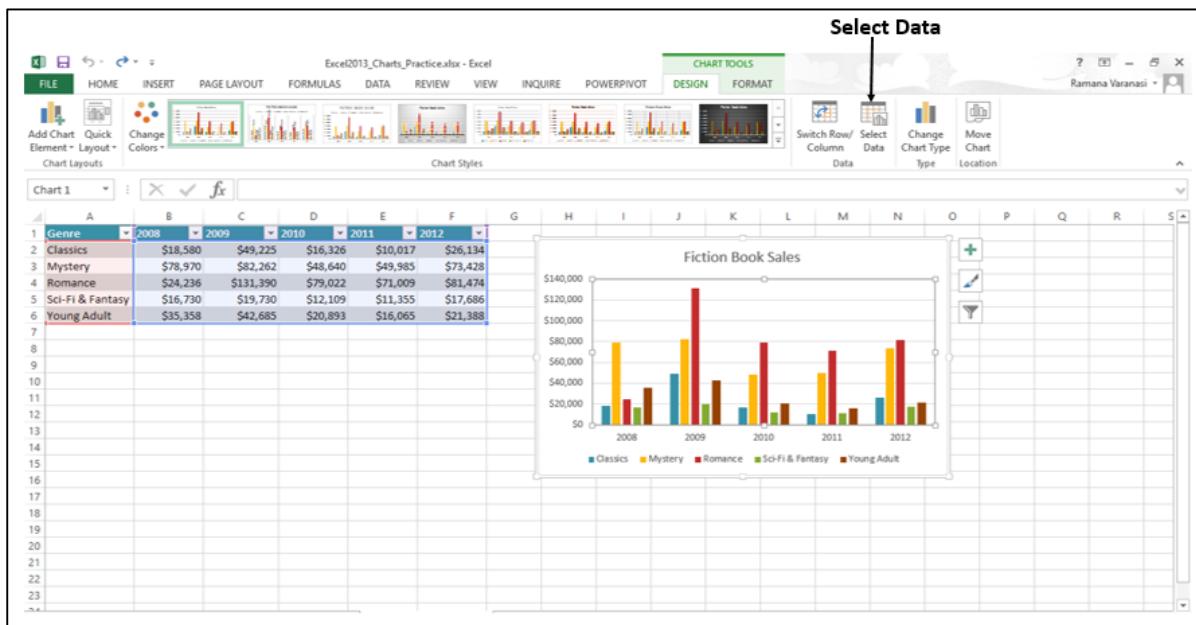


Step 1: Click on **Switch Row / Column**. You can see that the data will be swapped between X-Axis and Y-Axis.



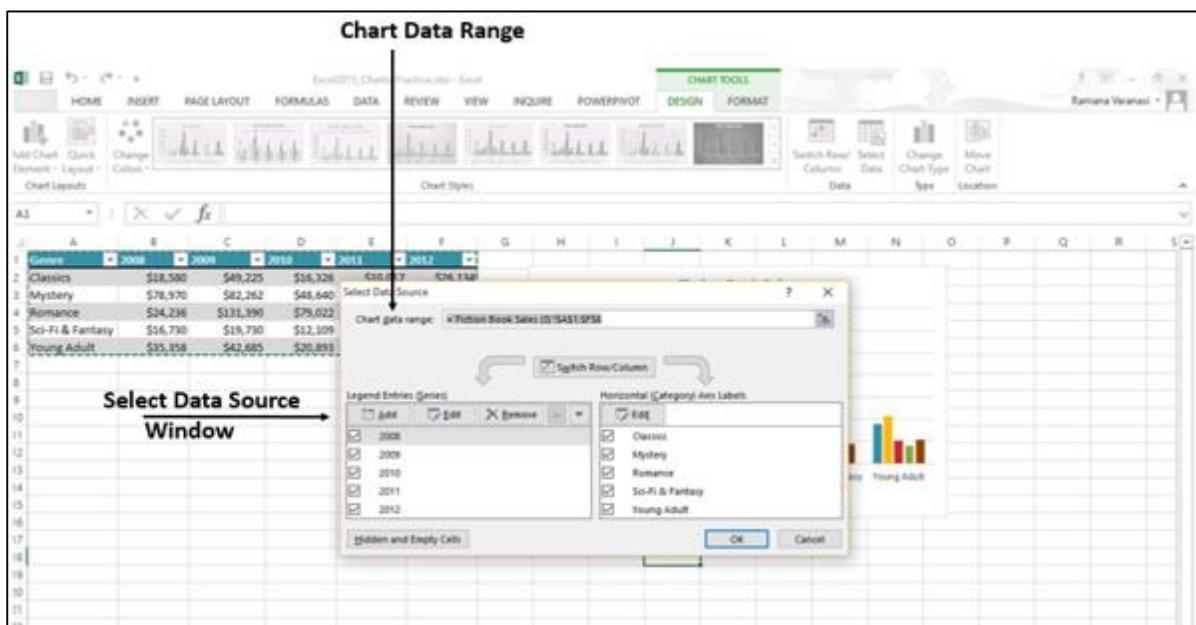
Select Data

You can change the Data Range included in the chart using this command.

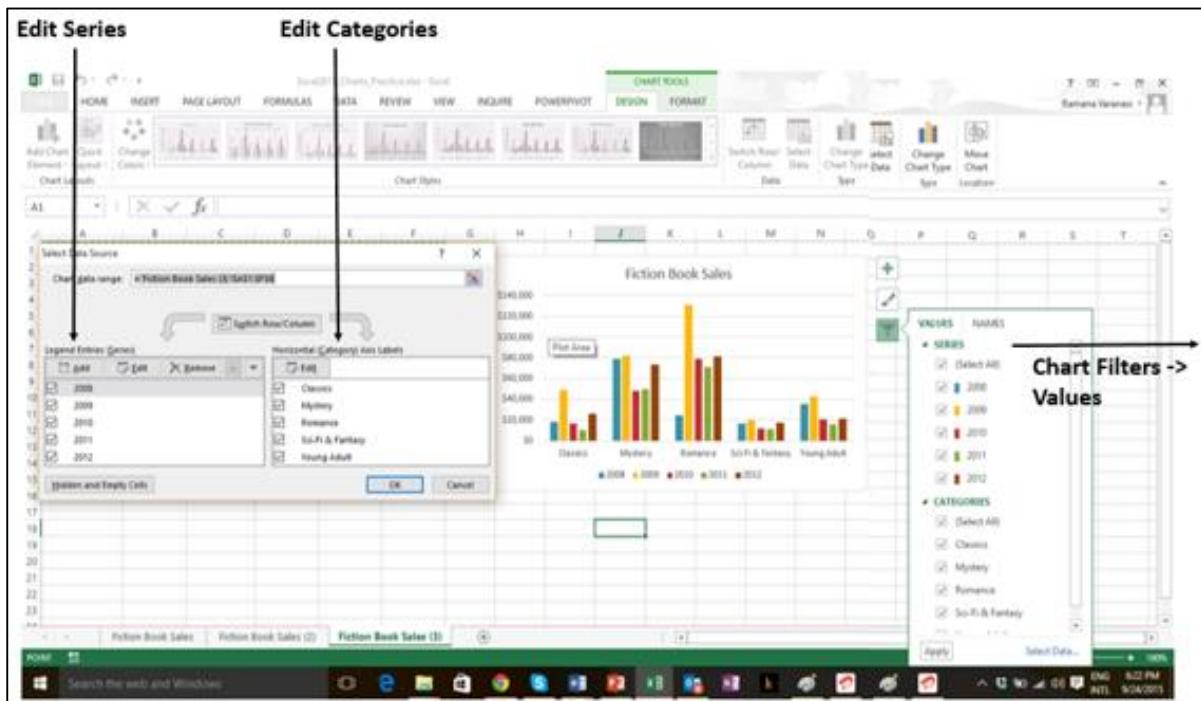


Step 1: Click on **Select Data**. The **Select Data Source** window appears as shown in the image given below.

Step 2: Select the **Chart Data Range**.

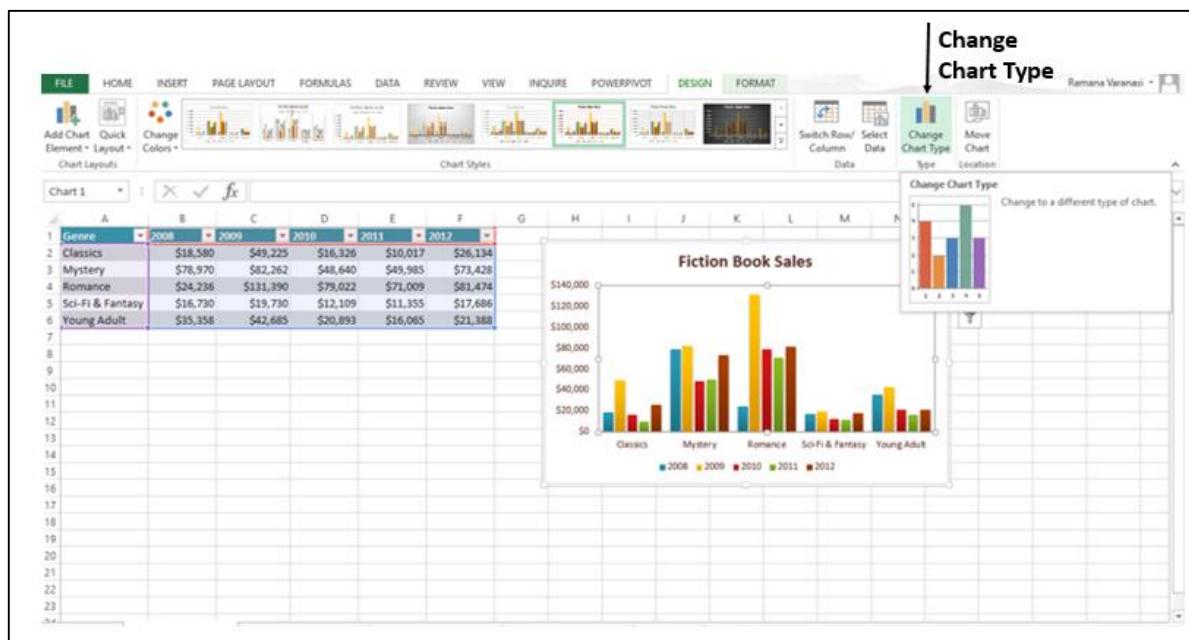


The window also has the options to edit the **Legend Entries (Series)** and **Categories**. This is the same as **Chart Elements -> Chart Filters -> VALUES**.

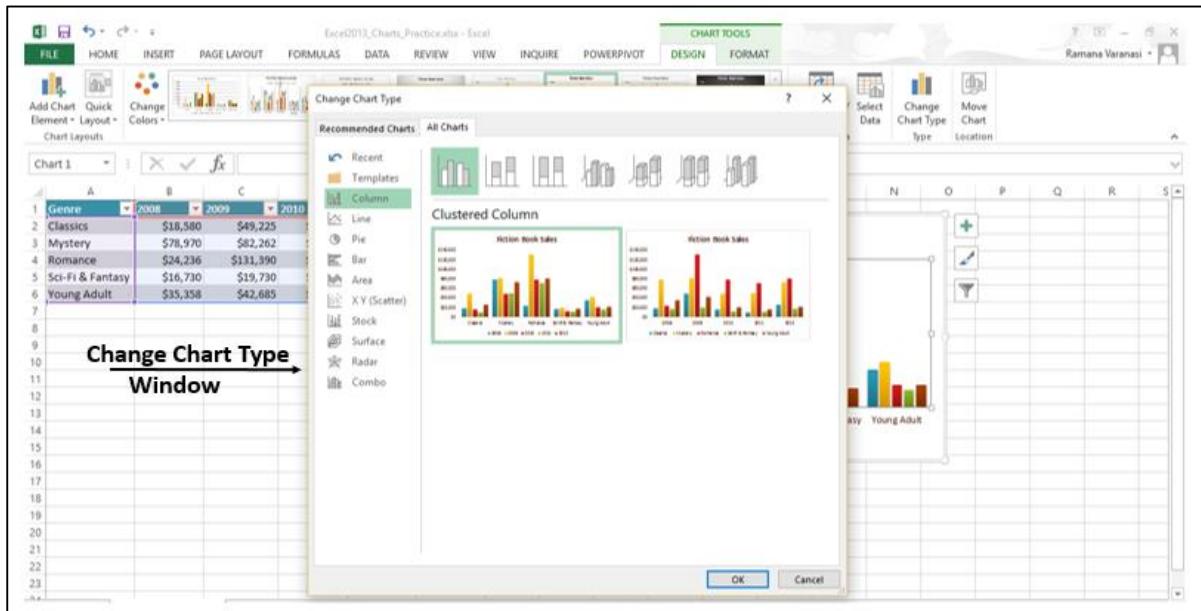


Change Chart Type

You can change to a different **Chart Type** using this option.



Step 1: Click on the **Change Chart Type** window. The **Change Chart Type** window appears.



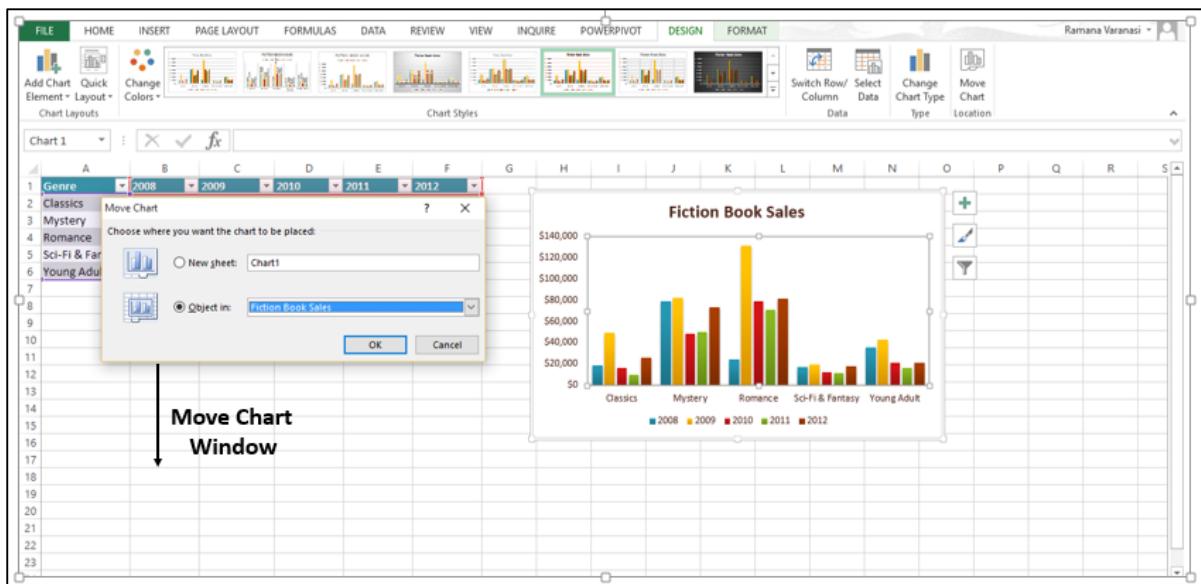
Step 2: Select the **Chart** Type you want. The Chart will be displayed with the type chosen.

Move Chart

You can move the Chart to another Worksheet in the Workbook using this option.



Click on **Move Chart**. The **Move Chart** window appears.



4. Excel – Richer Data Labels

You can have aesthetic and meaningful **Data Labels**. You can

- include rich and refreshable text from data points or any other text in your data labels
- enhance them with formatting and additional freeform text
- display them in just about any shape

Data labels stay in place, even when you switch to a different type of chart.

You can also connect them to their data points with **Leader Lines** on all charts and not just pie charts, which was the case in earlier versions of Excel.

Formatting Data Labels

We use a **Bubble Chart** to see the formatting of **Data Labels**.

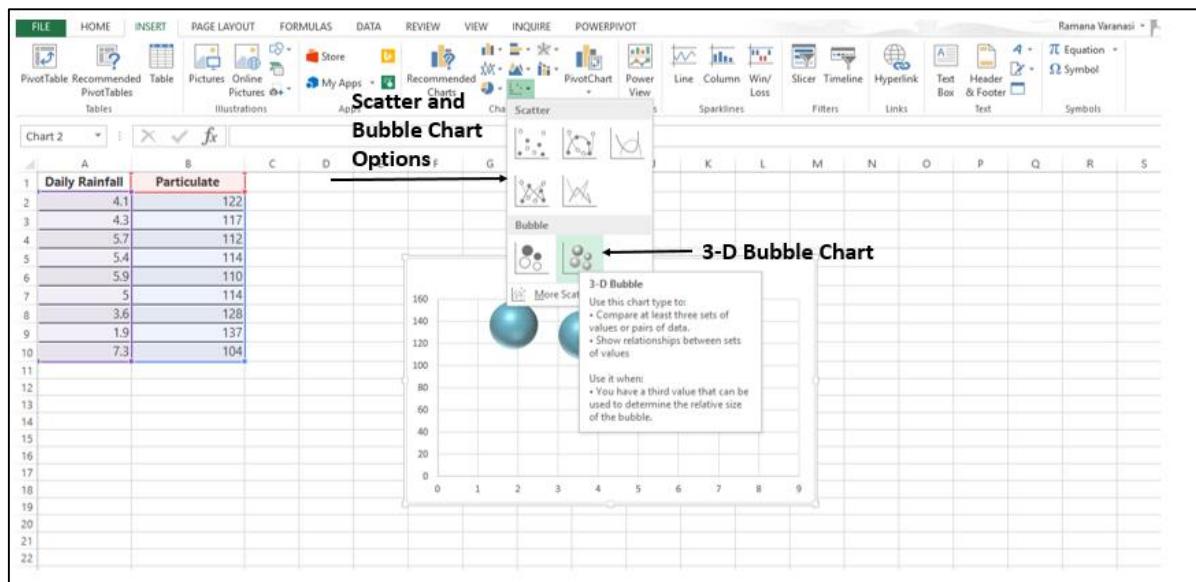
Step 1: Select your data.

Step 2: Click on the **Insert Scatter or the Bubble Chart**.

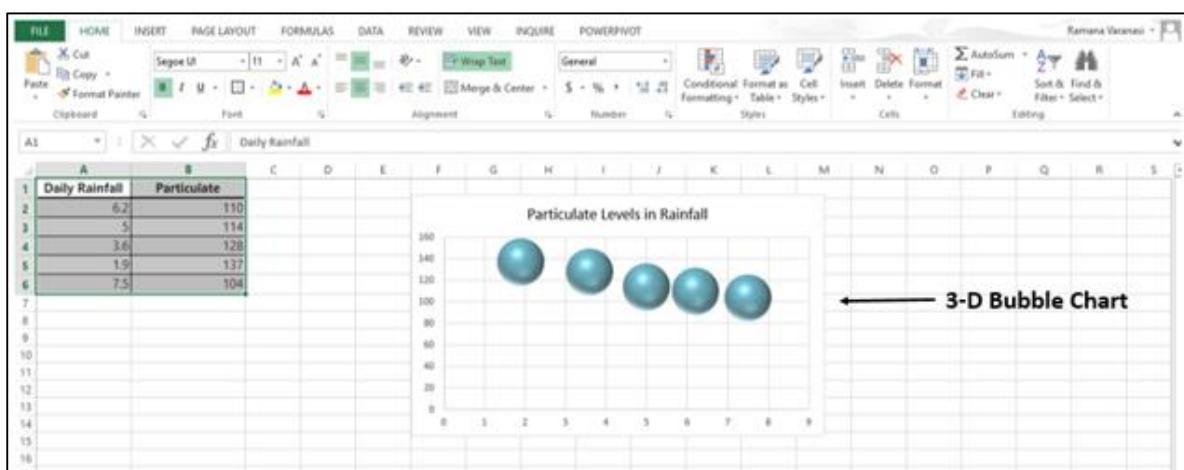
The screenshot shows a Microsoft Excel spreadsheet titled "Daily Rainfall". A table is present with columns for Daily Rainfall and Particulate. The "CHARTS" tab in the ribbon is selected, and a dropdown menu is open, showing various chart types. The "Bubble Chart" icon is highlighted. A tooltip box appears over the "Bubble Chart" icon, containing the text: "Insert Scatter (X, Y) or Bubble Chart. Use this chart type to show the relationship between sets of values. Click the arrow to see the different types of scatter and bubble charts available and pause the pointer on the icons to see a preview in your document." The background shows the rest of the Excel interface with other tabs like HOME, FORMULAS, REVIEW, and POWERPIVOT visible.

	A	B	C	D	E	F	G
1	Daily Rainfall	Particulate					
2	4.1	122					
3	4.3	117					
4	5.7	112					
5	5.4	114					
6	5.9	110					
7	5	114					
8	3.6	128					
9	1.9	137					
10	7.3	104					
11							
12							
13							
14							
15							
16							
17							

The options for the Scatter Charts and the 2-D and 3-D Bubble Charts appear.



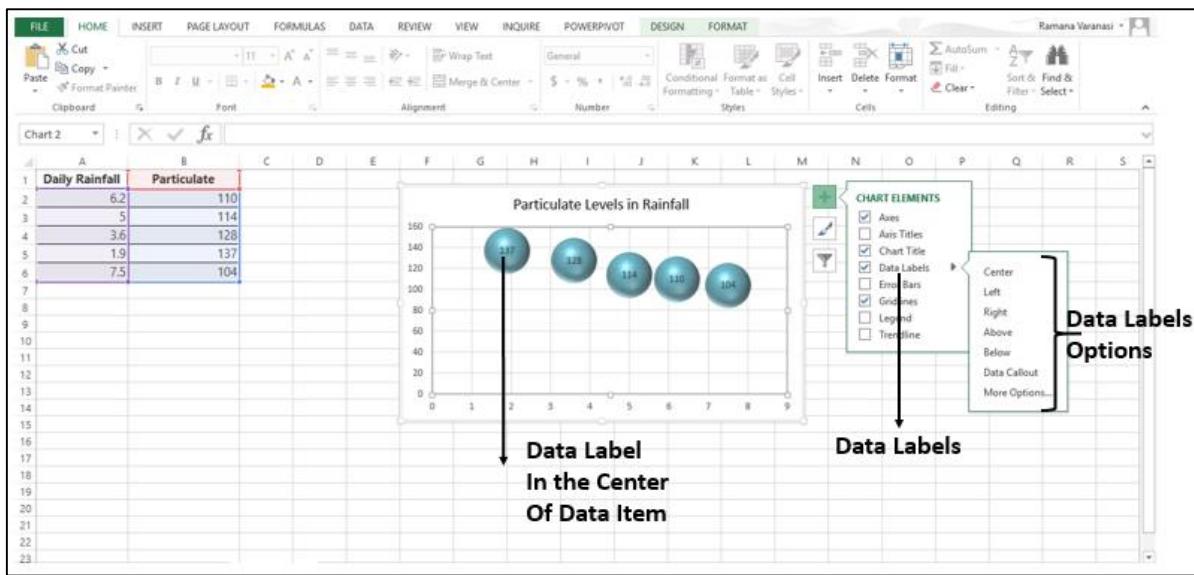
Step 3: Click on the **3-D Bubble Chart**. The **3-D Bubble Chart** will appear as shown in the image given below.



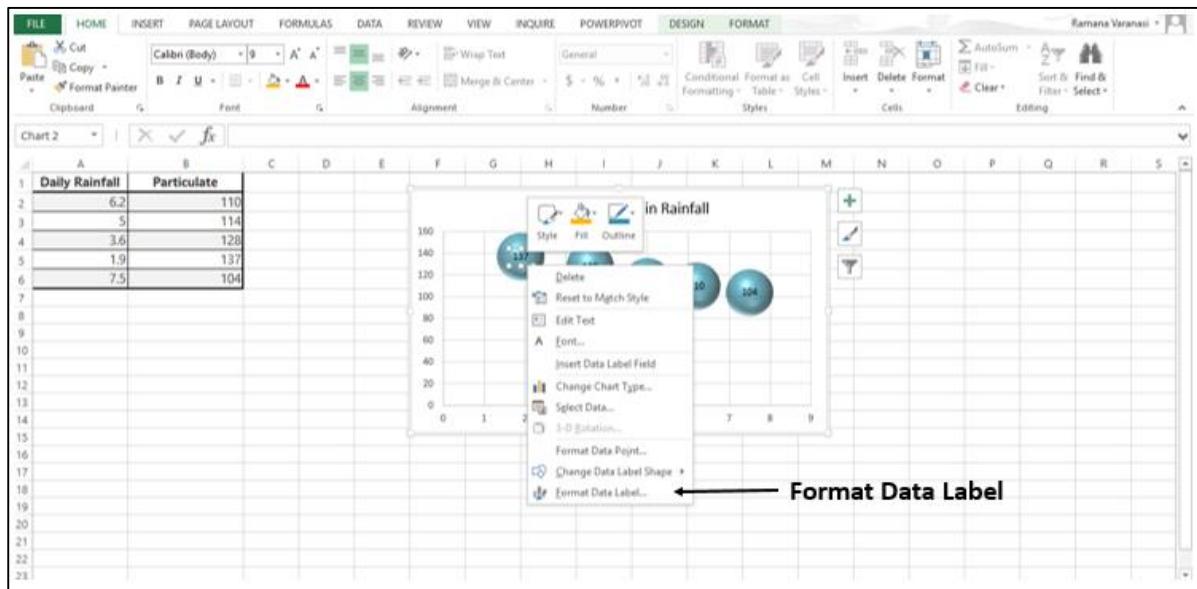
Step 4: Click on the chart and then click on **Chart Elements**.

Step 5: Select **Data Labels** from the options. Select the small symbol given on the right of **Data Labels**. Different options for the placement of the **Data Labels** appear.

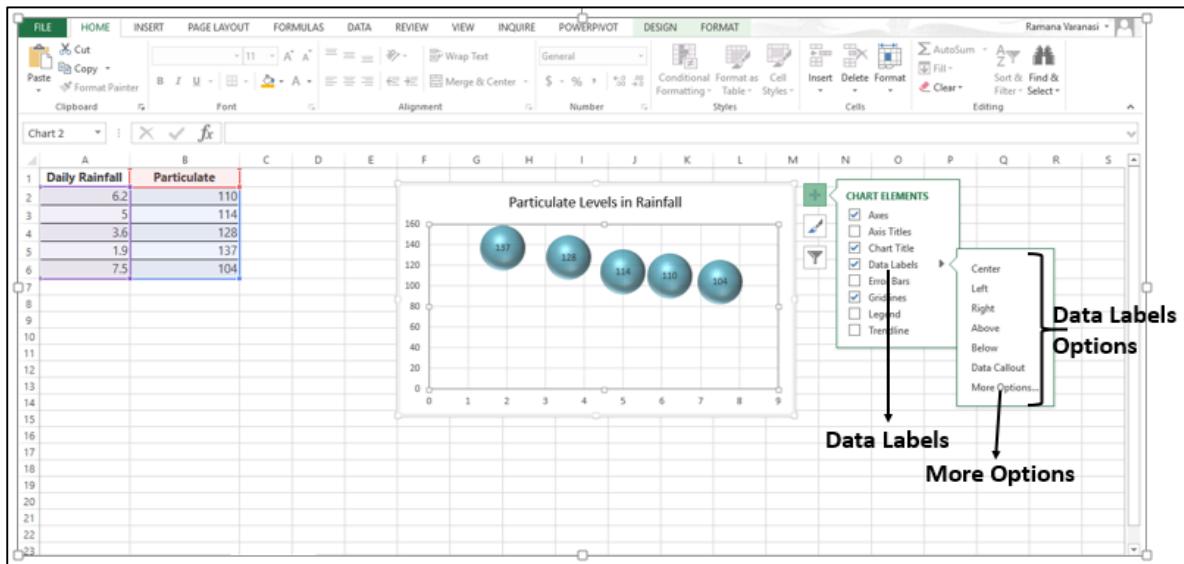
Step 6: If you select **Center**, the **Data Labels** will be placed at the center of the Bubbles.



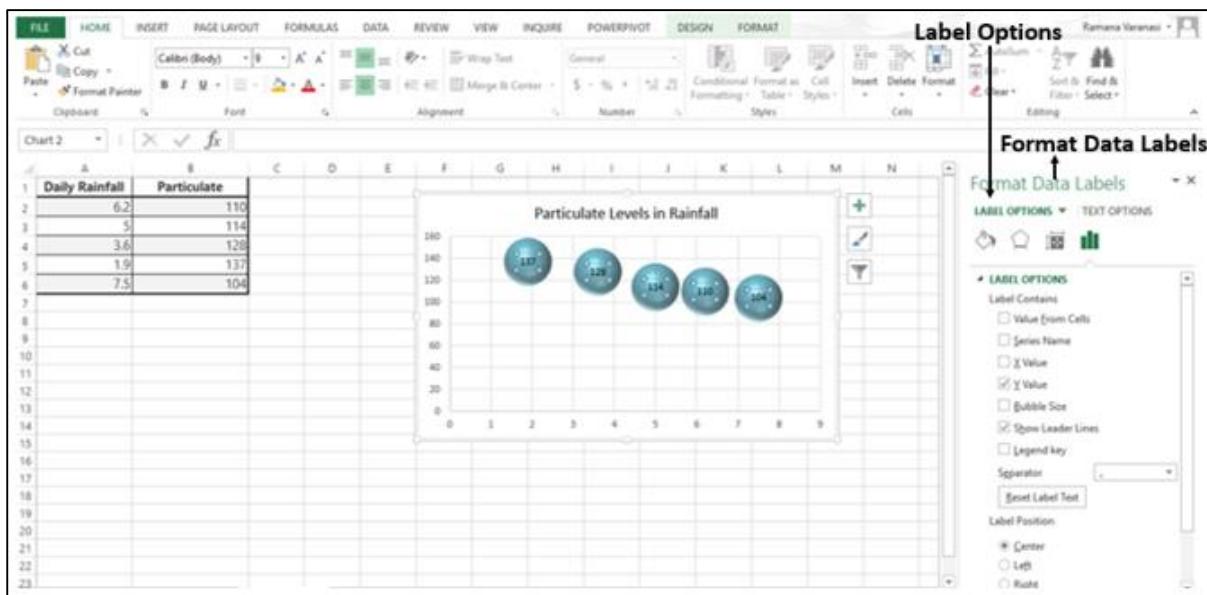
Step 7: Right-click on any one **Data Label**. A list of option appears as shown in the image given below.



Step 8: Click on the **Format Data Label**. Alternatively, you can also click on **More Options** available in the **Data Labels** options to display the **Format Data Label** Task Pane.

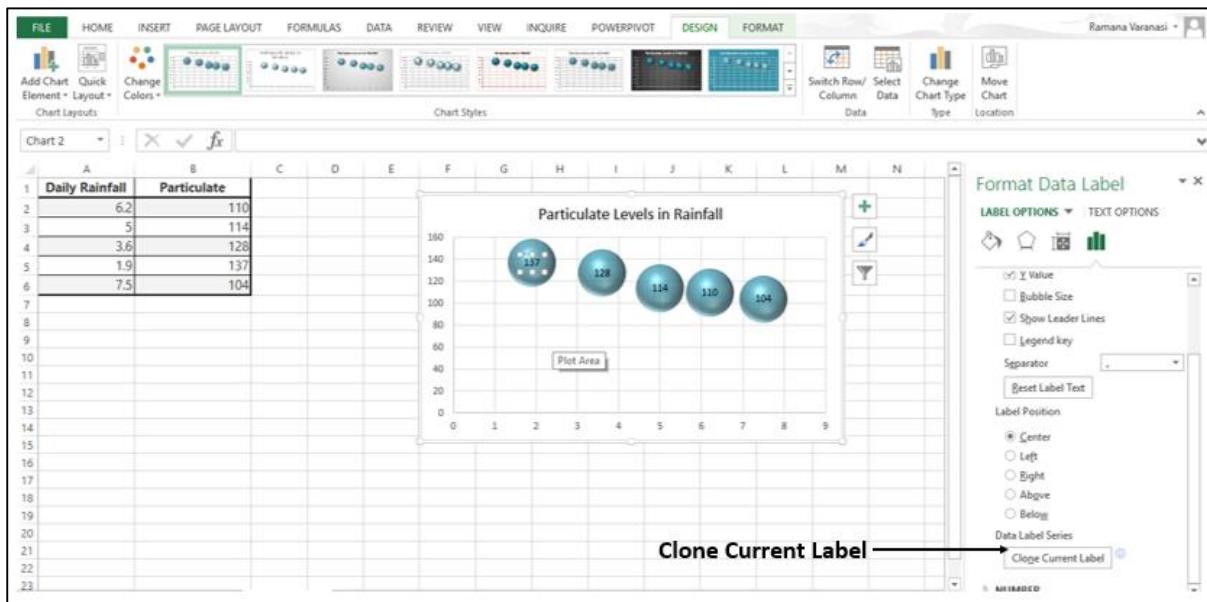


The **Format Data Label** Task Pane appears.



There are many options available for formatting of the **Data Labels** in the **Format Data Labels** Task Pane. Make sure that only one **Data Label** is selected while formatting.

Step 9: In **Label Options → Data Label Series**, click on **Clone Current Label**.



This will enable you to apply your custom **Data Label** formatting quickly to the other data points in the series.

Look of the Data Labels

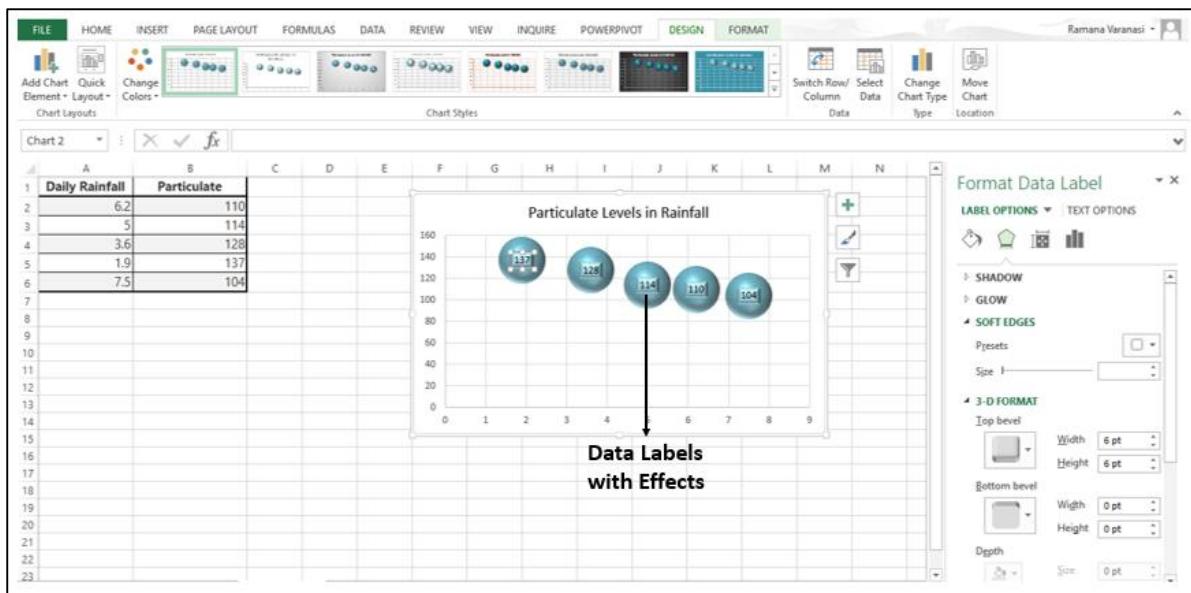
You can do many things to change the look of the **Data Label**, like changing the Fill color of the **Data Label** for emphasis.

Step 1: Click on the **Data Label**, whose Fill color you want to change. Double click to change the **Fill color** for just one **Data Label**. The **Format Data Label** Task Pane appears.

Step 3: Click **Fill → Solid Fill**. Choose the Color you want and then make the changes.

Step 4: Click **Effects** and choose the required effects. For example, you can make the label pop by adding an effect. Just be careful not to go overboard adding effects.

Step 5: In the **Label Options → Data Label Series**, click on **Clone Current Label**. All the other data labels will acquire the same effect.

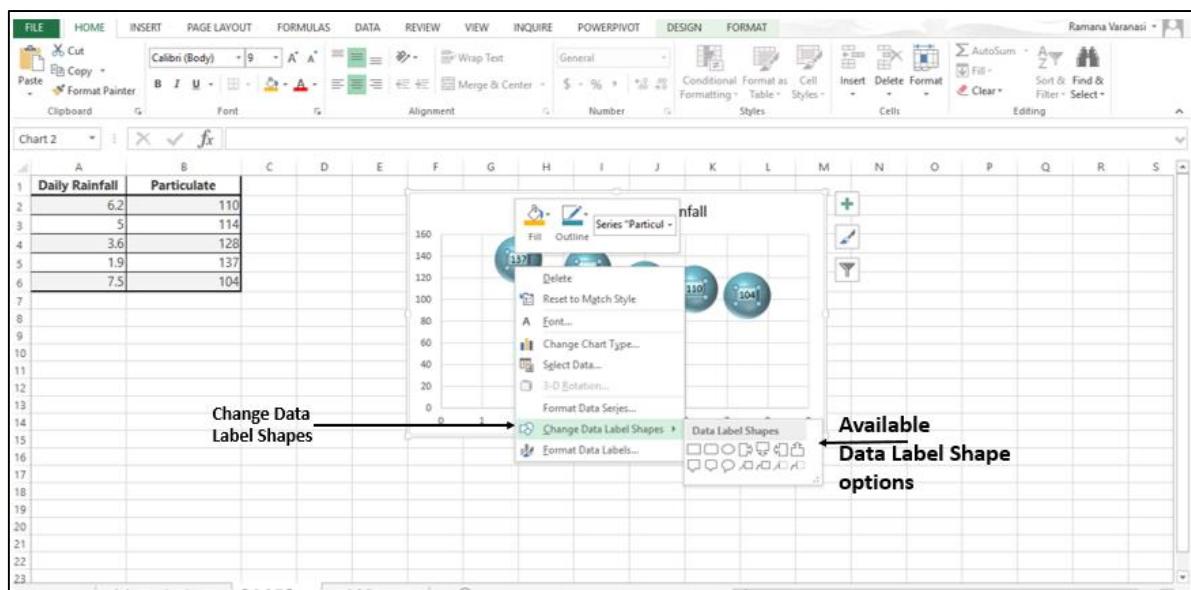


Shape of a Data Label

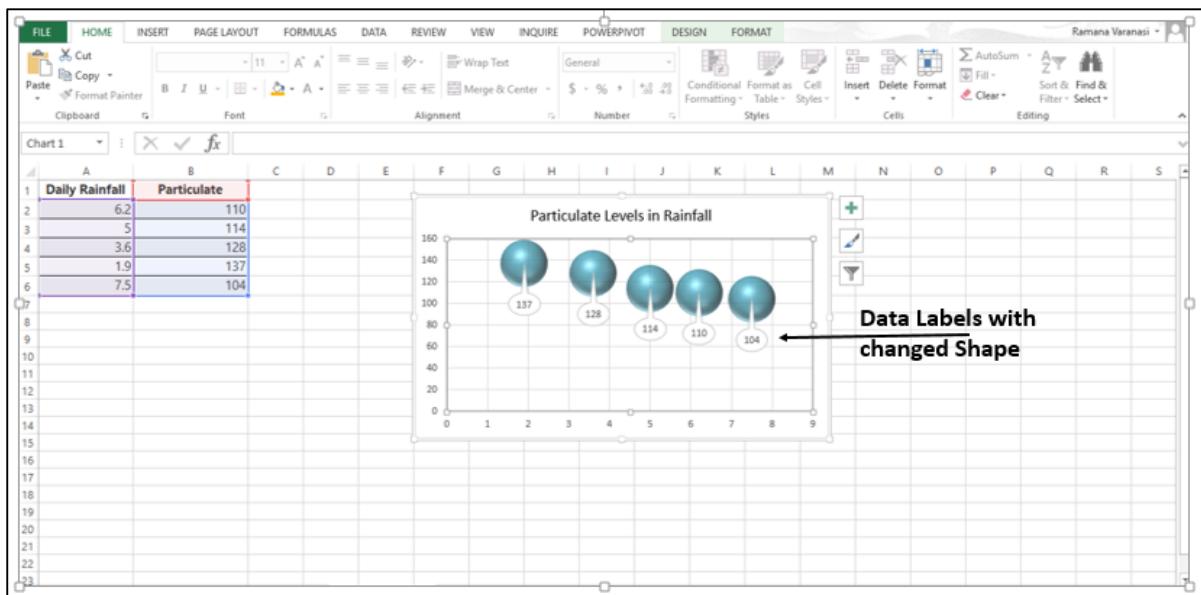
You can personalize your chart by changing the shapes of the **Data Label**.

Step 1: Right-click the **Data Label** you want to change.

Step 2: Click on **Change Data Label Shapes**.



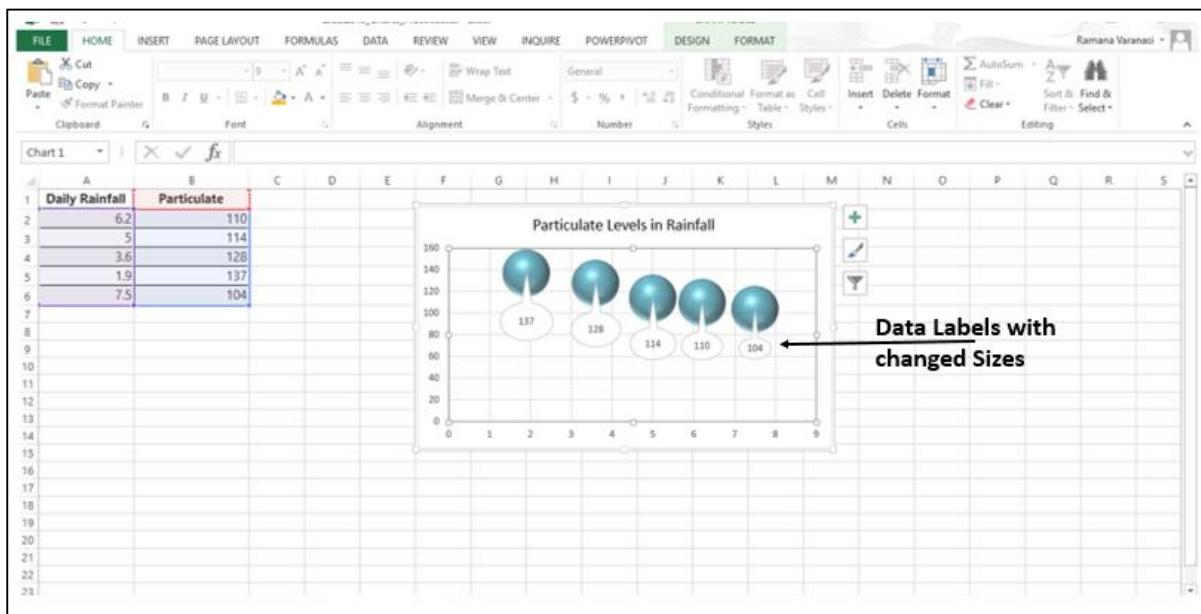
Step 3: Choose the shape you want.



Resize a Data Label

Step 1: Click on the data label.

Step 2: Drag it to the size you want. Alternatively, you can click on **Size & Properties** icon in the **Format Data Labels** task pane and then choose the size options.

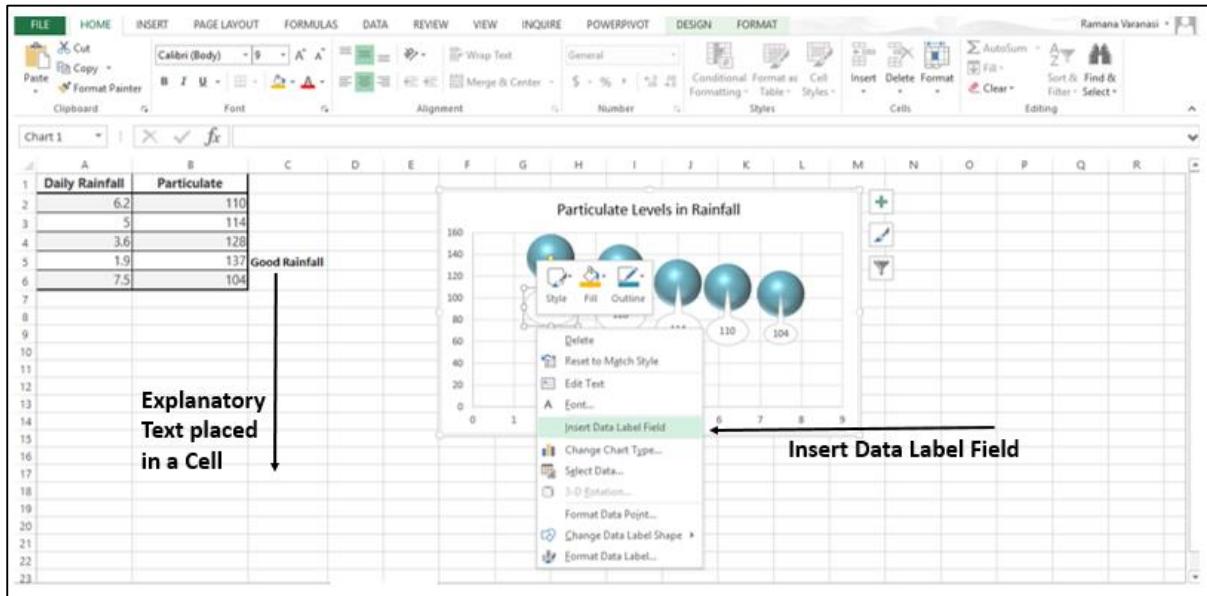


Add a Field to a Data Label

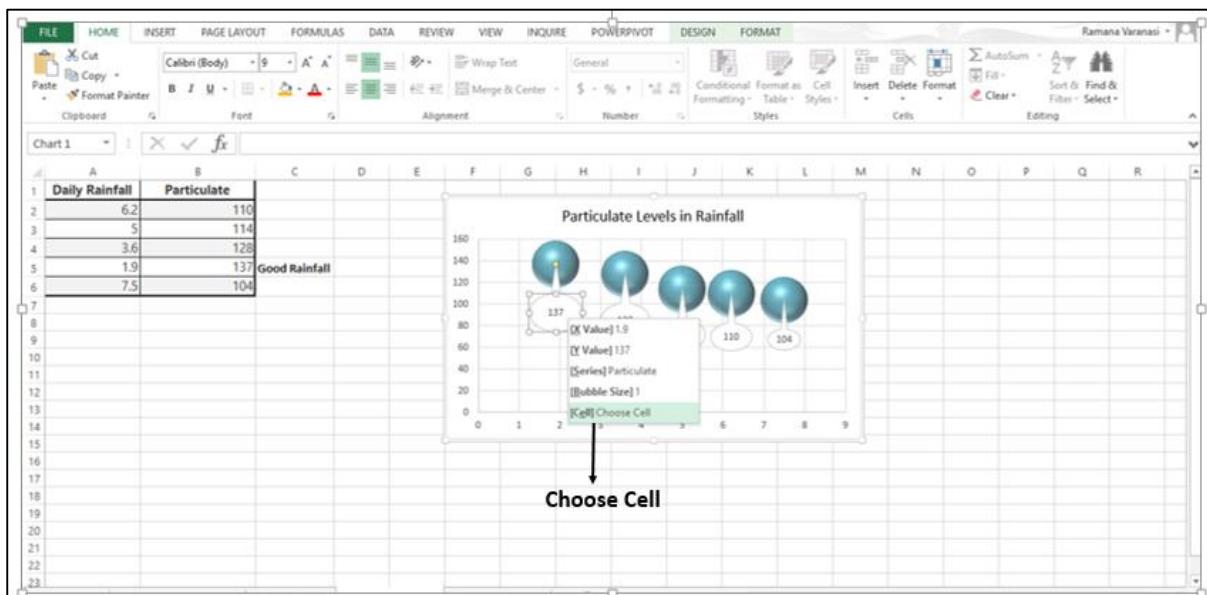
Excel 2013 has a powerful feature of adding a cell reference with explanatory text or a calculated value to a data label. Let us see how to add a field to the data label.

Step 1: Place the **Explanatory text** in a cell.

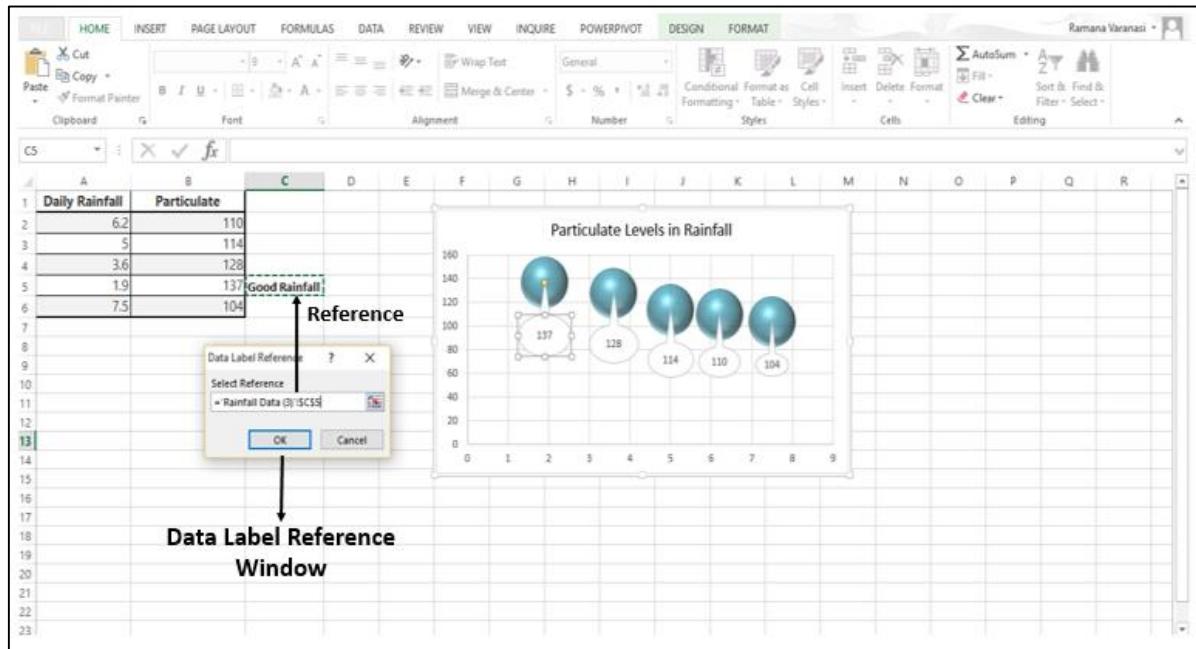
Step 2: Right-click on a data label. A list of options will appear.



Step 3: Click on the option-**Insert Data Label Field**.

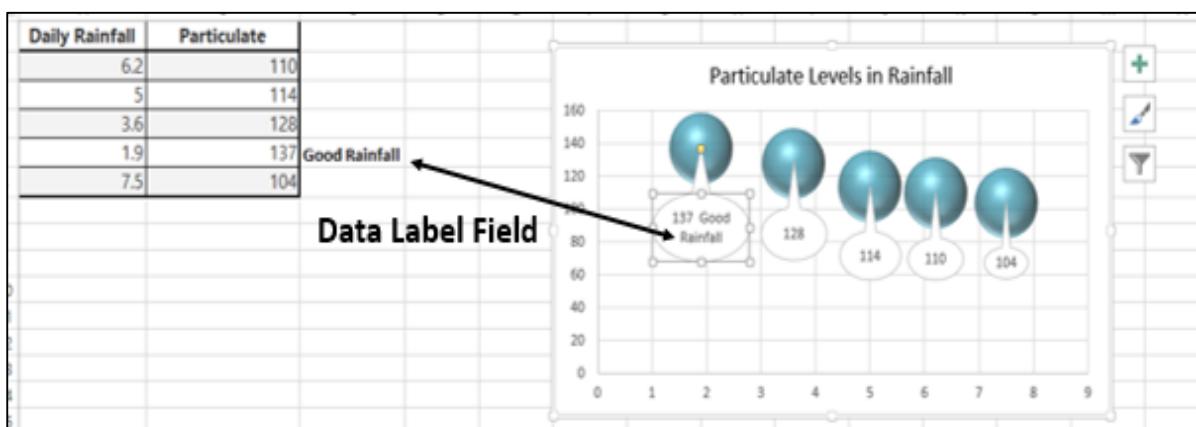


Step 4: From the available options, Click on **Choose Cell**. A **Data Label Reference** window appears.



Step 5: Select the **Cell Reference** where the Explanatory Text is written and then click **OK**. The explanatory text appears in the data label.

Step 6: Resize the data label to view the entire text.



5. Excel – Leader Lines

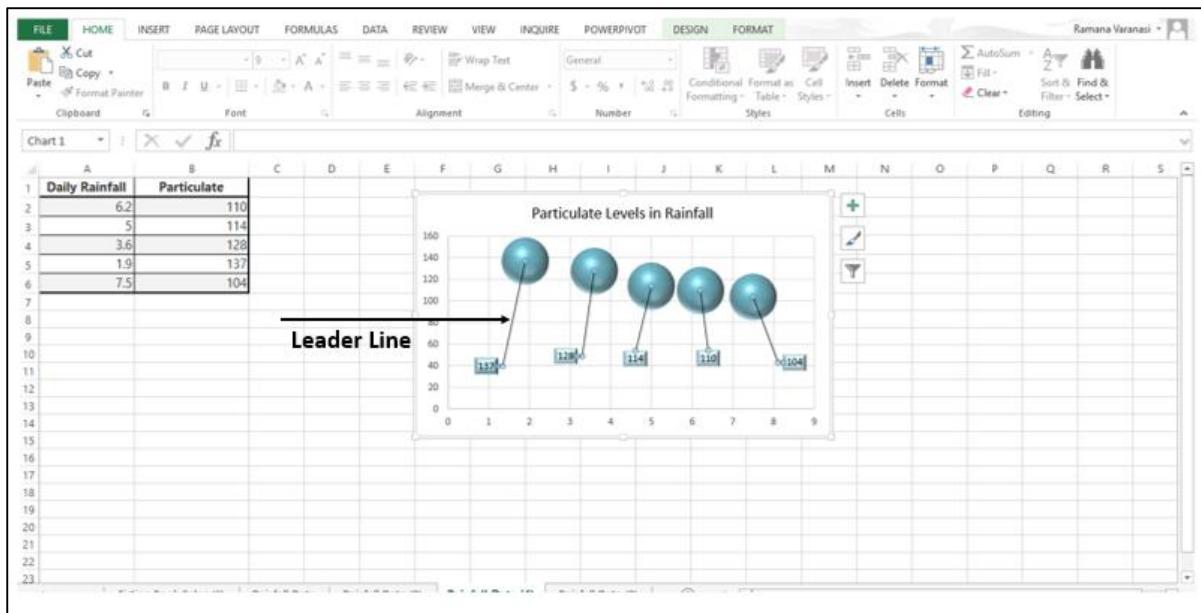
A **Leader Line** is a line that connects a data label and its associated data point. It is helpful when you have placed a data label away from a data point.

In earlier versions of Excel, only the pie charts had this functionality. Now, all the chart types with data label have this feature.

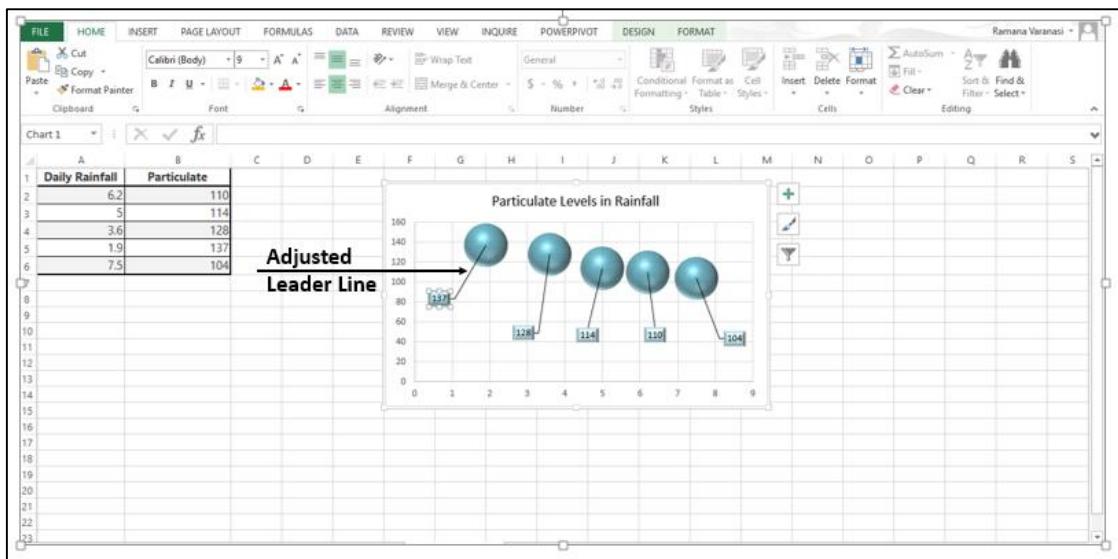
Add a Leader Line

Step 1: Click on the data label.

Step 2: Drag it after you see the four-headed arrow.

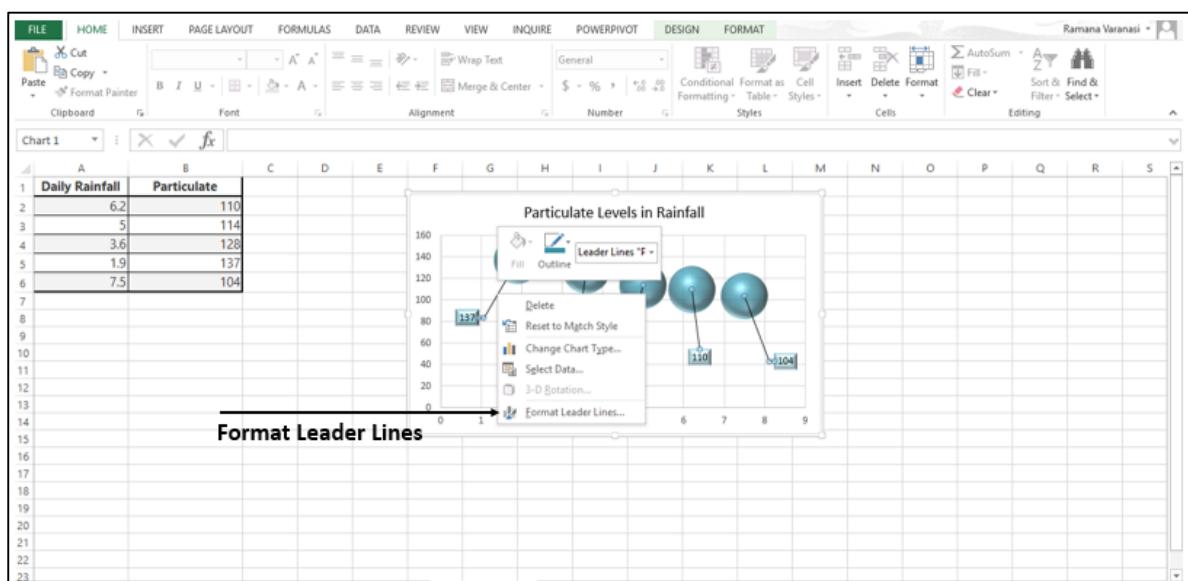


Step 3: Move the data label. The **Leader Line** automatically adjusts and follows it.

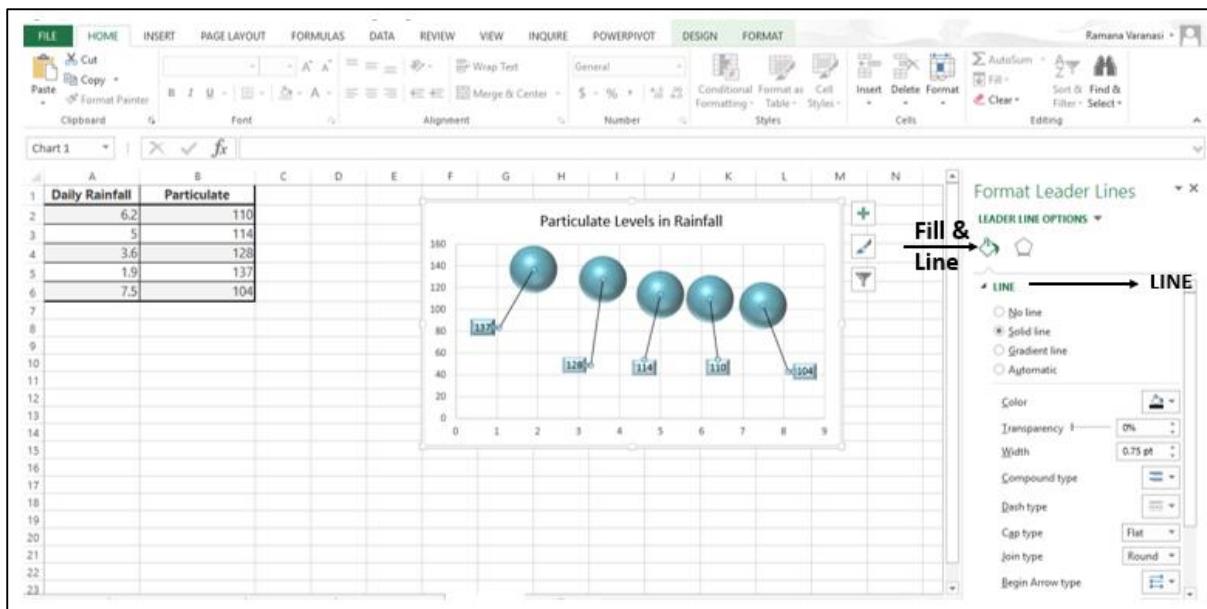


Format Leader Lines

Step 1: Right-click on the **Leader Line** you want to format.



Step 2: Click on **Format Leader Lines**. The **Format Leader Lines** task pane appears. Now you can format the leader lines as you require.



Step 3: Click on the icon **Fill & Line**.

Step 4: Click on **LINE**.

Step 5: Make the changes that you want. The leader lines will be formatted as per your choices.

6. Excel – New Functions

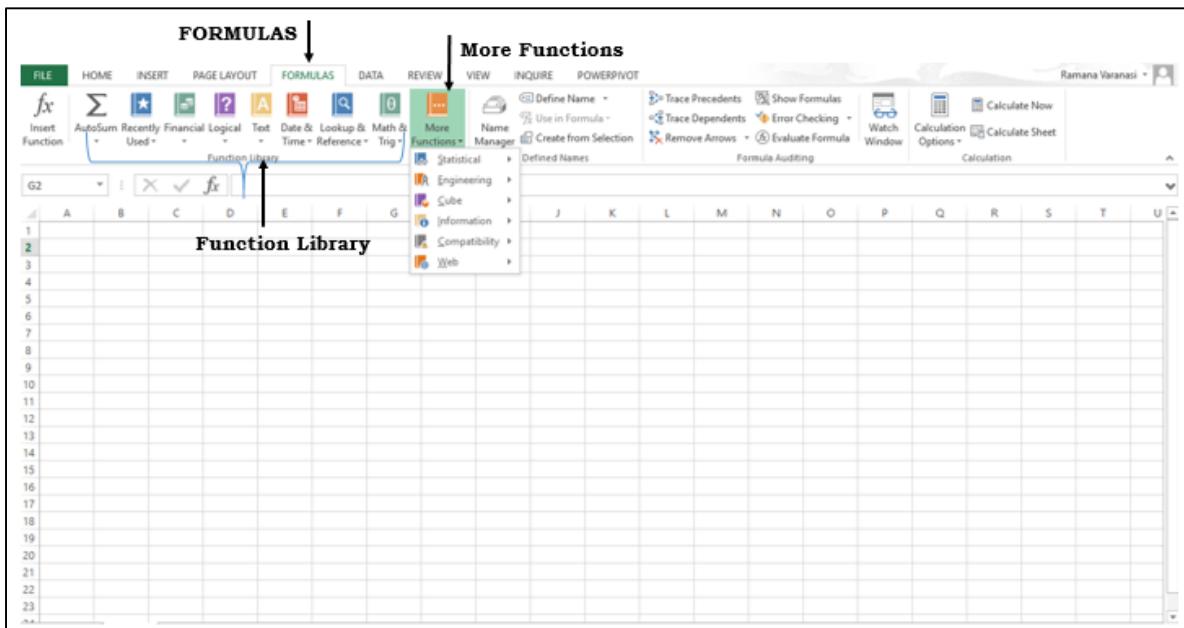
Several new functions are added in the math and trigonometry, statistical, engineering, date and time, lookup and reference, logical, and text function categories. Also, Web category is introduced with few Web service functions.

Functions by Category

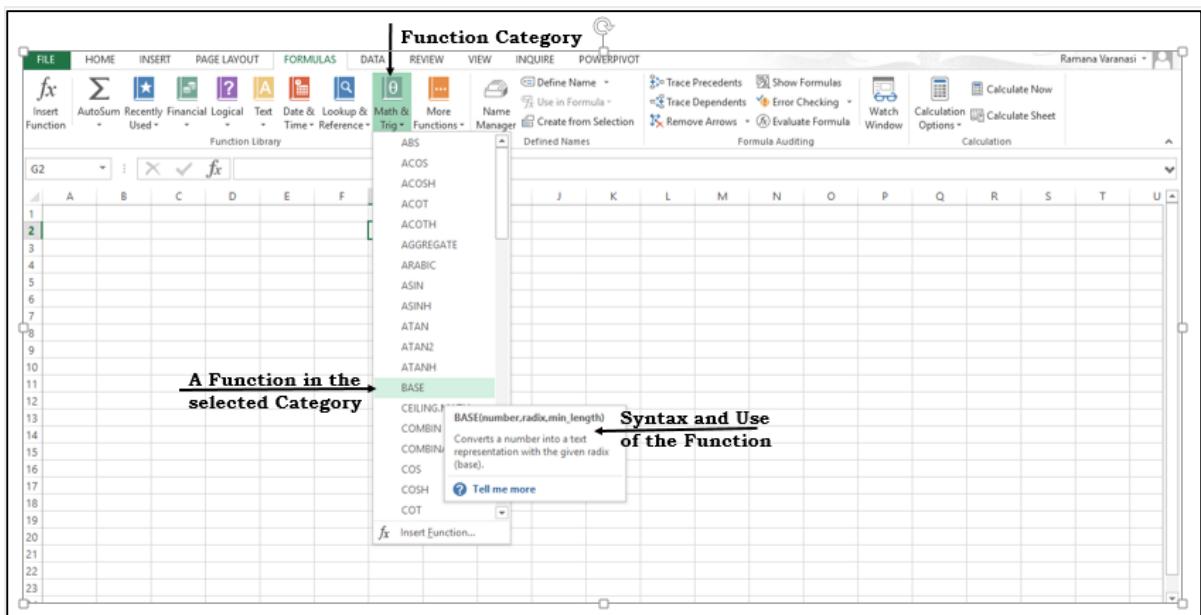
Excel functions are categorized by their functionality. If you know the category of the function that you are looking for, you can click that category.

Step 1: Click on the **FORMULAS** tab. The **Function Library** group appears. The group contains the function categories.

Step 2: Click on **More Functions**. Some more function categories will be displayed.



Step 3: Click on a function category. All the functions in that category will be displayed. As you scroll on the functions, the syntax of the function and the use of the function will be displayed as shown in the image given below.



New Functions in Excel 2013

Date and Time Functions

- DAY**: Returns the number of days between two dates.
- ISOWEEKNUM**: Returns the number of the ISO week number of the year for a given date.

Engineering Functions

- BITAND**: Returns a 'Bitwise And' of two numbers.
- BITLSHIFT**: Returns a value number shifted left by shift_amount bits.
- BITOR**: Returns a bitwise OR of 2 numbers.
- BITRSHIFT**: Returns a value number shifted right by shift_amount bits.
- BITXOR**: Returns a bitwise 'Exclusive Or' of two numbers.
- IMCOSH**: Returns the hyperbolic cosine of a complex number.
- IMCOT**: Returns the cotangent of a complex number.
- IMCSC**: Returns the cosecant of a complex number.
- IMCSCH**: Returns the hyperbolic cosecant of a complex number.
- IMSEC**: Returns the secant of a complex number.

- **IMSECH** : Returns the hyperbolic secant of a complex number.
- **IMSIN**: Returns the sine of a complex number.
- **IMSINH**: Returns the hyperbolic sine of a complex number.
- **IMTAN**: Returns the tangent of a complex number.

Financial Functions

- **PDURATION**: Returns the number of periods required by an investment to reach a specified value.
- **RRI**: Returns an equivalent interest rate for the growth of an investment.

Information Functions

- **ISFORMULA**: Returns TRUE if there is a reference to a cell that contains a formula.
- **SHEET**: Returns the sheet number of the referenced sheet.
- **SHEETS**: Returns the number of sheets in a reference.

Logical Functions

- **IFNA**: Returns the value you specify if the expression resolves to #N/A, otherwise returns the result of the expression.
- **XOR**: Returns a logical exclusive OR of all arguments.

Lookup and Reference Functions

- **FORMULATEXT**: Returns the formula at the given reference as text.
- **GETPIVOTDATA**: Returns data stored in a PivotTable report.

Math and Trigonometry Functions

- **ACOT**: Returns the arccotangent of a number.
- **ACOTH**: Returns the hyperbolic arccotangent of a number.
- **BASE**: Converts a number into a text representation with the given radix (base).
- **CEILING.MATH**: Rounds a number up, to the nearest integer or to the nearest multiple of significance.
- **COMBINA**: Returns the number of combinations with repetitions for a given number of items.
- **COT**: Returns the cotangent of an angle.
- **COTH**: Returns the hyperbolic cotangent of a number.

- **CSC:** Returns the cosecant of an angle.
- **CSCH:** Returns the hyperbolic cosecant of an angle.
- **DECIMAL:** Converts a text representation of a number in a given base into a decimal number.
- **FLOOR.MATH:** Rounds a number down, to the nearest integer or to the nearest multiple of significance.
- **ISO.CEILING:** Returns a number that is rounded up to the nearest integer or to the nearest multiple of significance.
- **MUNIT:** Returns the unit matrix or the specified dimension.
- **SEC:** Returns the secant of an angle.
- **SECH:** Returns the hyperbolic secant of an angle.

Statistical Functions

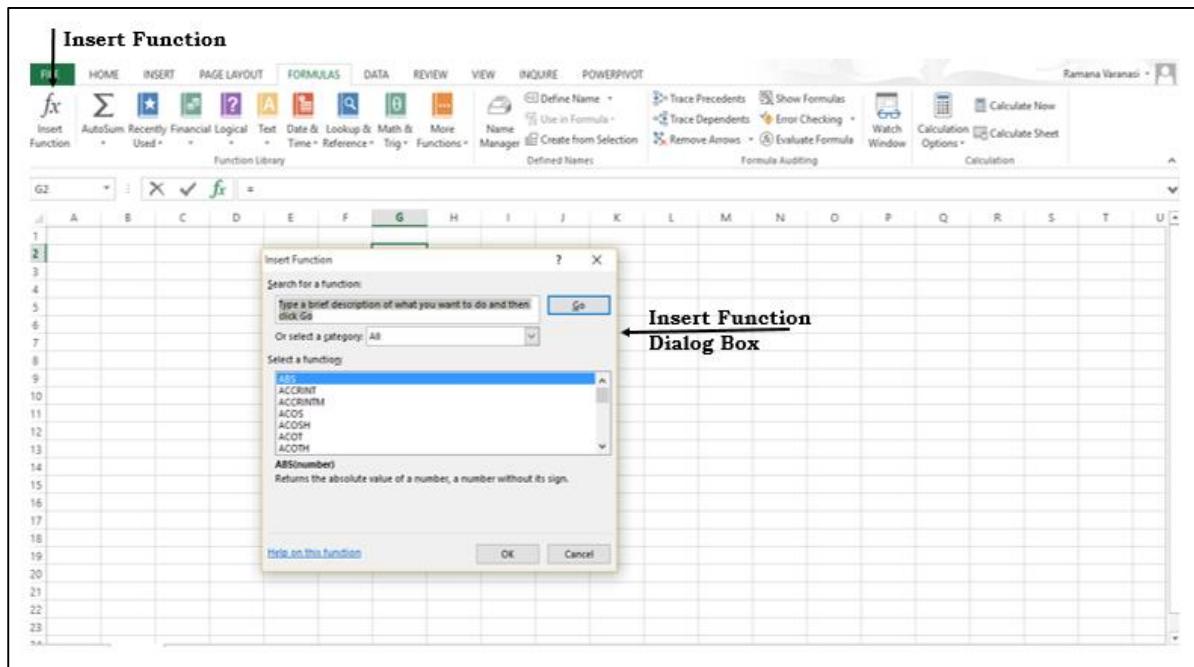
- **BINOM.DIST.RANGE:** Returns the probability of a trial result using a binomial distribution.
- **GAMMA:** Returns the Gamma function value.
- **GAUSS:** Returns 0.5 less than the standard normal cumulative distribution.
- **PERMUTATIONA:** Returns the number of permutations for a given number of objects (with repetitions) that can be selected from the total objects.
- **PHI:** Returns the value of the density function for a standard normal distribution.
- **SKEW.P:** Returns the skewness of a distribution based on a population: a characterization of the degree of asymmetry of a distribution around its mean.

Text Functions

- **DBCS:** Changes half-width (single-byte) English letters or katakana within a character string to full-width (double-byte) characters.
- **NUMBERVALUE:** Converts text to number in a locale-independent manner.
- **UNICHAR:** Returns the Unicode character that is references by the given numeric value.
- **UNICODE:** Returns the number (code point) that corresponds to the first character of the text.

User Defined Functions in Add-ins

The **Add-ins** that you install contain Functions. These add-in or automation functions will be available in the **User Defined** category in the **Insert Function** dialog box.



- **CALL:** Calls a procedure in a dynamic link library or code resource.
- **EUROCONVERT:** Converts a number to euros, converts a number from euros to a euro member currency, or converts a number from one euro member currency to another by using the euro as an intermediary (triangulation).
- **REGISTER.ID:** Returns the register ID of the specified dynamic link library (DLL) or code resource that has been previously registered.
- **SQL.REQUEST:** Connects with an external data source and runs a query from a worksheet, then returns the result as an array without the need for macro programming.

Web Functions

The following web functions are introduced in Excel 2013.

- **ENCODEURL:** Returns a URL-encoded string.
- **FILTERXML:** Returns specific data from the XML content by using the specified XPath.
- **WEBSERVICE:** Returns the data from a web service.

Part 2: Fundamental Data Analysis

7. Instant Data Analysis

In Microsoft Excel 2013, it is possible to do data analysis with quick steps. Further, different analysis features are readily available. This is through the Quick Analysis tool.

Quick Analysis Features

Excel 2013 provides the following analysis features for instant data analysis.

Formatting

Formatting allows you to highlight the parts of your data by adding things like data bars and colors. This lets you quickly see high and low values, among other things.

Charts

Charts are used to depict the data pictorially. There are several types of charts to suit different types of data.

Totals

Totals can be used to calculate the numbers in columns and rows. You have functions such as Sum, Average, Count, etc. which can be used.

Tables

Tables help you to filter, sort and summarize your data. The **Table** and **PivotTable** are a couple of examples.

Sparklines

Sparklines are like tiny charts that you can show alongside your data in the cells. They provide a quick way to see the trends.

Quick Analysis of Data

Follow the steps given below for quickly analyzing the data.

Step 1: Select the cells that contain the data you want to analyze.

A screenshot of Microsoft Excel showing a table titled "First Quarter Exam Scores". The table contains data for five students across four exams. The range A3:E8 is selected, indicated by a green border. A black arrow points from the text "Selected Data" to the bottom right corner of the selected range.

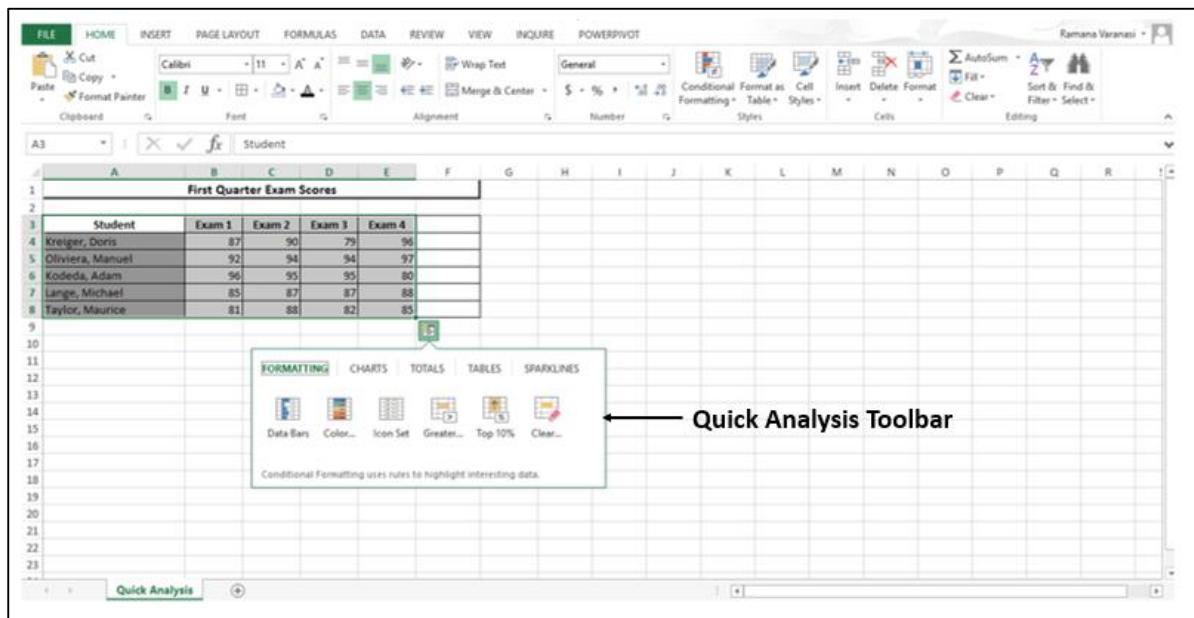
Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	94	97
Kodeda, Adam	96	95	95	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

A **Quick Analysis** button  appears to the bottom right of your selected data.

A screenshot of Microsoft Excel showing the same table of student exam scores. The range A3:E8 is selected. A black arrow points from the text "Quick Analysis Button" to the small blue square icon in the bottom right corner of the selected range, which is the Quick Analysis button.

Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	94	97
Kodeda, Adam	96	95	95	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Step 2: Click the **Quick Analysis**  button that appears (or press CTRL + Q). The Quick Analysis toolbar appears with the options of **FORMATTING, CHARTS, TOTALS, TABLES and SPARKLINES**.



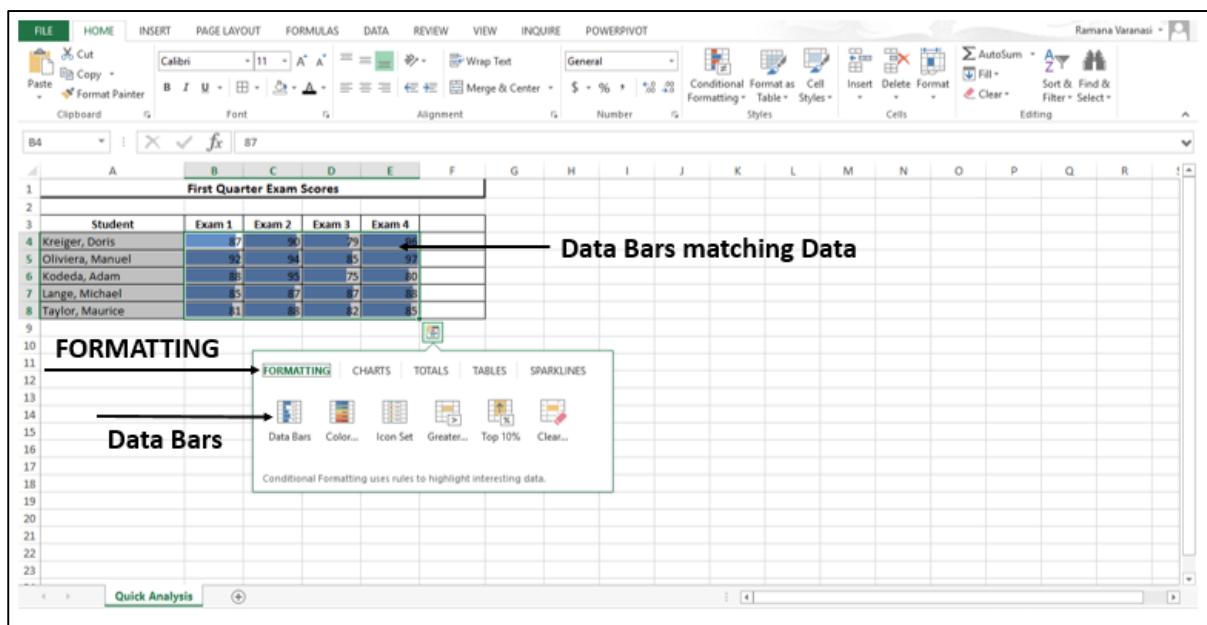
Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	94	97
Kodeda, Adam	96	95	95	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Conditional Formatting

Conditional formatting uses the rules to highlight the data. This option is available on the **Home tab** also, but with quick analysis it is handy and quick to use. Also, you can have a preview of the data by applying different options, before selecting the one you want.

Step 1: Click on the **FORMATTING** button.

Step 2: Click on **Data Bars**.



Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

The colored Data Bars that match the values of the data appear.

Step 3: Click on **Color Scale**.

A screenshot of Microsoft Excel showing a table of 'First Quarter Exam Scores'. The table has columns for Student and Exam 1 through Exam 4. The data is color-coded using conditional formatting. A callout points to the 'Color...' button in the 'Formatting' tab of the Quick Analysis ribbon, which is highlighted with a green box. The text 'Cells colored as per Data' is displayed next to the callout.

First Quarter Exam Scores					
	Student	Exam 1	Exam 2	Exam 3	Exam 4
4	Kreiger, Doris	87	90	79	96
5	Oliviera, Manuel	92	94	85	97
6	Kodeda, Adam	88	95	75	80
7	Lange, Michael	85	87	87	88
8	Taylor, Maurice	81	88	82	85

Quick Analysis

FORMATTING CHARTS TOTALS TABLES SPARKLINES

Data Bars Color... Icon Set Greater... Top 10% Clear...

Conditional Formatting uses rules to highlight interesting data.

Color Scale

The cells will be colored to the relative values as per the data they contain.

Step 4: Click on the **Icon Set**. The icons assigned to the cell values will be displayed.

A screenshot of Microsoft Excel showing the same table of exam scores. The data is now represented by icons from the 'Icon Set' conditional formatting rule. A callout points to the 'Icon Set' button in the 'Formatting' tab of the Quick Analysis ribbon, which is highlighted with a green box. The text 'Icons assigned cell values' is displayed next to the callout.

First Quarter Exam Scores					
	Student	Exam 1	Exam 2	Exam 3	Exam 4
4	Kreiger, Doris	87	90	79	96
5	Oliviera, Manuel	92	94	85	97
6	Kodeda, Adam	88	95	75	80
7	Lange, Michael	85	87	87	88
8	Taylor, Maurice	81	88	82	85

Quick Analysis

FORMATTING CHARTS TOTALS TABLES SPARKLINES

Data Bars Color... Icon Set Greater... Top 10% Clear...

Conditional Formatting uses rules to highlight interesting data.

Icon Set

Step 5: Click on the option-Greater than.

The screenshot shows a Microsoft Excel spreadsheet titled "First Quarter Exam Scores". The data includes columns for Student and four Exam scores (Exam 1, Exam 2, Exam 3, Exam 4). A green callout box highlights the "Greater..." button in the "Formatting" tab of the ribbon's "Conditional Formatting" section. An arrow points from the text "Values Greater than a particular Value" to this button. Another arrow points from the text "Greater than" to the "Greater..." button in the dialog box.

First Quarter Exam Scores				
Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Values greater than a value set by Excel will be colored. You can set your own value in the Dialog Box that appears.

The screenshot shows the same Excel spreadsheet with the "Greater Than" dialog box open. The dialog box has the title "Greater Than" and the instruction "Format cells that are GREATER THAN:". It contains a text input field with the value "86" and a dropdown menu showing "Light Red Fill with Dark Red Text". Arrows point from the text "Set the Value" to the input field and from the text "Dialog Box" to the dialog box itself.

First Quarter Exam Scores				
Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Step 6: Click on Top 10%.

The screenshot shows the Microsoft Excel interface with a table titled "First Quarter Exam Scores". The table contains student names and their scores across four exams. A callout arrow points from the text "Values that are in 10%" to the cell containing the value "97" in row 5, column E. Another callout arrow points from the text "Top 10%" to the "Top 10%" button in the "Conditional Formatting" section of the "Quick Analysis" tool. The "Quick Analysis" tool also displays other options like Data Bars, Color..., Icon Set, Greater..., and Clear... The status bar at the bottom indicates "Conditional Formatting uses rules to highlight interesting data."

First Quarter Exam Scores				
Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Values that are in top 10% will be colored.

Step 7: Click on **Clear Formatting**.

The screenshot shows the Microsoft Excel interface with the same table. A callout arrow points from the text "Formatting is cleared on the Data" to the "Clear..." button in the "Conditional Formatting" section of the "Quick Analysis" tool. Another callout arrow points from the text "Clear Formatting" to the "Clear..." button. The "Quick Analysis" tool also displays other options like Data Bars, Color..., Icon Set, Greater..., and Top 10%. The status bar at the bottom indicates "Conditional Formatting uses rules to highlight interesting data."

First Quarter Exam Scores				
Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Whatever formatting is applied will be cleared.

Step 8: Move the mouse over the **FORMATTING options**. You will have a preview of all the formatting for your Data. You can choose whatever best suits your data.

Charts

Recommended **Charts** help you visualize your **Data**.

Step 1: Click on **CHARTS**. **Recommended Charts** for your data will be displayed.

The screenshot shows a Microsoft Excel spreadsheet titled "First Quarter Exam Scores". The data includes student names and their scores across four exams. The "CHARTS" tab is selected in the ribbon. A callout box labeled "Recommended Charts" points to a preview of a clustered bar chart showing the exam scores for each student.

Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Step 2: Move over the charts recommended. You can see the Previews of the Charts.

The screenshot shows the same Excel spreadsheet with the "CHARTS" tab selected. A preview of a clustered bar chart is displayed, showing the exam scores for each student. The chart has "Chart Title" at the top and a legend below it. An arrow points from the text "Preview of the Recommended Chart" to the chart area.

Student	Exam 1
Kreiger, Doris	87
Oliviera, Manuel	92
Kodeda, Adam	88
Lange, Michael	85
Taylor, Maurice	81

Step 3: Click on **More** as shown in the image given below.

The screenshot shows the Microsoft Excel interface with the 'HOME' tab selected in the ribbon. A data table titled 'First Quarter Exam Scores' is displayed in the worksheet area. In the ribbon, under the 'CHARTS' tab, there is a 'Recommended Charts' section. A callout box highlights the 'More...' button in this section, which is part of a larger 'More Recommended Charts' dropdown menu. The menu also includes options like 'Clustere...', 'Stacked...', 'Clustered...', 'Stacked...', and 'Clustered...'. Below the menu, a note says 'Recommended Charts help you visualize data.'

More Recommended Charts are displayed.

The screenshot shows the Microsoft Excel interface with the 'HOME' tab selected in the ribbon. A data table titled 'First Quarter Exam Scores' is displayed in the worksheet area. In the ribbon, under the 'CHARTS' tab, there is a 'Recommended Charts' section. A callout box highlights the 'More Recommended Charts' section in the ribbon, indicated by an arrow. The 'Insert Chart' dialog box is open, showing the 'Scatter' chart type selected. A sample scatter plot is displayed with data points for 'Exam 2' and 'Exam 4'. The dialog box also contains descriptive text about scatter charts and buttons for 'OK' and 'Cancel'.

Totals

Totals help you to calculate the numbers in rows and columns.

Step 1: Click on **TOTALS**. All the options available under **TOTALS** options are displayed. The little black arrows on the right and left are to see additional options.

The screenshot shows a Microsoft Excel spreadsheet titled "First Quarter Exam Scores". The data includes student names and their scores across four exams. The "TOTALS" button in the ribbon is highlighted. A callout bubble points to the "Sum" icon in the dropdown menu with the text "Little Arrow to see Additional Options". The "TOTALS Options" section is also visible.

Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Step 2: Click on the **Sum** icon. This option is used to sum the numbers in the columns.

The screenshot shows the same Microsoft Excel spreadsheet. The "Sum" icon in the "TOTALS" dropdown menu is highlighted. A callout bubble points to the "Sum" icon with the text "Sum of Columns".

Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Step 3: Click on **Average**. This option is used to calculate the average of the numbers in the columns.

The screenshot shows a Microsoft Excel spreadsheet titled "First Quarter Exam Scores". The data includes student names and their scores across four exams. The "Average" button in the Quick Analysis tool is highlighted with a green box. A callout bubble labeled "Average" points to the button. The formula bar shows the formula =AVERAGE(B9:D9) for cell E9.

Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Step 4: Click on **Count**. This option is used to count the number of values in the column.

The screenshot shows the same Microsoft Excel spreadsheet as above. The "Count" button in the Quick Analysis tool is highlighted with a green box. A callout bubble labeled "Count" points to the button. The formula bar shows the formula =COUNT(B9:D9) for cell E9.

Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Step 5: Click on **%Total**. This option is to compute the percent of the column that represents the total sum of the data values selected.

The screenshot shows a Microsoft Excel spreadsheet titled "First Quarter Exam Scores". The data includes student names and their scores across four exams. The "Quick Analysis" button is selected, displaying a gallery with various options like Sum, Average, Count, % Total, Running..., and Sum. The "% Total" option is highlighted with a green box and a callout bubble labeled "% of column in the Total".

Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Step 6: Click on **Running Total**. This option displays the **Running Total** of each column.

The screenshot shows the same Microsoft Excel spreadsheet as above. The "Quick Analysis" button is selected, displaying the same gallery of options. The "Running..." option is highlighted with a green box and a callout bubble labeled "Running Total of the Column".

Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

Step 7: Click on **Sum**. This option is to sum the numbers in the rows.

The screenshot shows a Microsoft Excel spreadsheet titled "First Quarter Exam Scores". The data includes columns for Student, Exam 1, Exam 2, Exam 3, Exam 4, and Sum. A green callout points to the "Sum" button in the "TOTALS" tab of the Quick Analysis gallery. The gallery also includes options for Average, Count, % Total, and Running... .

Student	Exam 1	Exam 2	Exam 3	Exam 4	Sum
Kreiger, Doris	87	90	79	96	352
Oliviera, Manuel	92	94	85	97	368
Kodeda, Adam	88	95	75	80	338
Lange, Michael	85	87	87	88	347
Taylor, Maurice	81	88	82	85	336

Step 8: Click on the symbol . This displays more options to the right.

The screenshot shows the same Microsoft Excel spreadsheet and Quick Analysis gallery as the previous step. A green callout points to the right-pointing arrow in the "TOTALS" tab, which reveals additional options like "Sum", "Average", "Count", "% Total", and "Running...".

Step 9: Click on **Average**. This option is to calculate the average of the numbers in the rows.

The screenshot shows a Microsoft Excel spreadsheet titled "First Quarter Exam Scores". The data includes columns for Student, Exam 1, Exam 2, Exam 3, Exam 4, and Average. The "Average" column contains the formula =AVERAGE(B4:D4). A callout box highlights the "Average" button in the "TOTALS" tab of the Quick Analysis tool, which is overlaid on the ribbon. The text "Average of Rows" is written above the callout box.

Student	Exam 1	Exam 2	Exam 3	Exam 4	Average
Kreiger, Doris	87	90	79	96	88
Oliviera, Manuel	92	94	85	97	92
Kodeda, Adam	88	95	75	80	84.5
Lange, Michael	85	87	87	88	86.75
Taylor, Maurice	81	88	82	85	84

Step 10: Click on **Count**. This option is to count the number of values in the rows.

The screenshot shows the same "First Quarter Exam Scores" spreadsheet. The "Count" column contains the formula =COUNT(B4:D4). A callout box highlights the "Count" button in the "TOTALS" tab of the Quick Analysis tool, which is overlaid on the ribbon. The text "Count of values in the Rows" is written above the callout box.

Student	Exam 1	Exam 2	Exam 3	Exam 4	Count
Kreiger, Doris	87	90	79	96	4
Oliviera, Manuel	92	94	85	97	4
Kodeda, Adam	88	95	75	80	4
Lange, Michael	85	87	87	88	4
Taylor, Maurice	81	88	82	85	4

Step 11: Click on %Total.

This option is to compute the percent of the row that represents the total sum of the data values selected.

Student	Exam 1	Exam 2	Exam 3	Exam 4	% Total
Kreiger, Doris	87	90	79	96	20.22%
Oliviera, Manuel	92	94	85	97	21.14%
Kodeda, Adam	88	95	75	80	19.41%
Lange, Michael	85	87	87	88	19.93%
Taylor, Maurice	81	88	82	85	19.30%

Step 12: Click on Running Total. This option displays the Running Total of each row.

Student	Exam 1	Exam 2	Exam 3	Exam 4	Running Total
Kreiger, Doris	87	90	79	96	352
Oliviera, Manuel	92	94	85	97	720
Kodeda, Adam	88	95	75	80	1058
Lange, Michael	85	87	87	88	1405
Taylor, Maurice	81	88	82	85	1741

Tables

Tables help you sort, filter and summarize the data.

The screenshot shows a Microsoft Excel spreadsheet titled "First Quarter Exam Scores". The data consists of student names in column A and exam scores in columns B through E. The "TABLES" tab is highlighted in the ribbon, and a callout box points to it with the text "Tables help you sort, filter, and summarize data." The status bar at the bottom shows "AVERAGE: 87.05" and "COUNT: 30".

Student	Exam 1	Exam 2	Exam 3	Exam 4
Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	95	75	80
Lange, Michael	85	87	87	88
Taylor, Maurice	81	88	82	85

The options in the **TABLES** depend on the data you have chosen and may vary.

Step 1: Click on **TABLES**.

Step 2: Hover on the **Table** icon. A preview of the Table appears.

The screenshot shows the same Excel spreadsheet with the "TABLES" tab selected. A preview of the table is displayed below the ribbon, showing the student names and exam scores with dropdown arrows indicating filterable fields. The "Table" icon in the ribbon is also highlighted. A callout box points to the preview with the text "Preview of Table". The status bar at the bottom shows "AVERAGE: 87.05" and "COUNT: 30".

Student	Exam 1	Student	Exam 2	Exam 3	Exam 4	
Kreiger, Doris	87	Kreiger, Doris	87	90	79	96
Oliviera, Manuel	92	Oliviera, Manuel	92	94	85	97
Kodeda, Adam	88	Kodeda, Adam	88	95	75	80
Lange, Michael	85	Lange, Michael	85	87	87	88
Taylor, Maurice	81	Taylor, Maurice	81	88	82	85

Step 3: Click on **Table**. The **Table** is displayed. You can sort and filter the data using this feature.

The screenshot shows a Microsoft Excel spreadsheet titled "Analysis.xlsx - Excel". A table is selected, highlighted by a green border. The table has a header row and contains data for eight students across five exams. The "Table Tools" ribbon is open, with the "DESIGN" tab selected. An arrow points from the word "Table" to the table itself. The status bar at the bottom right shows "Ramana Varanasi".

First Quarter Exam Scores					
Student	Exam	Exam	Exam	Exam	Exam
Kreiger, Doris	87	90	79	96	
Oliviera, Manuel	92	94	85	97	
Kodeda, Adam	88	95	75	80	
Lange, Michael	85	87	87	88	
Taylor, Maurice	81	88	82	85	

Step 4: Click on the **Pivot Table** to create a pivot table. Pivot Table helps you to summarize your data.

The screenshot shows a Microsoft Excel spreadsheet with the "Pivot Table" icon selected in the "Tables" section of the ribbon. A callout box highlights the "Tables" tab and the "Blank..." button. The status bar at the bottom right shows "Ramana Varanasi".

Sparklines

SPARKLINES are like tiny charts that you can show alongside your data in cells. They provide a quick way to show the trends of your data.

Step 1: Click on **SPARKLINES**. The chart options displayed are based on the data and may vary.

The screenshot shows a Microsoft Excel spreadsheet titled "First Quarter Exam Scores". The data includes columns for Student names and four exam scores. A "Sparklines" ribbon tab is highlighted, showing three chart options: Line, Column, and Win/Loss. A callout box labeled "SPARKLINES" points to the ribbon tab, and another callout box labeled "Chart Options" points to the chart icons.

Student	Exam 1	Exam 2	Exam 3	Exam 4	Sparklines
Kreiger, Doris	87	90	79	96	
Oliviera, Manuel	92	94	85	97	
Kodeda, Adam	88	95	75	80	
Lange, Michael	85	87	87	88	
Taylor, Maurice	81	88	82	85	

Step 2: Click on **Line**. A line chart for each row is displayed.

The screenshot shows the same Excel spreadsheet with the "Line" chart option selected from the Sparklines ribbon tab. Three line charts are now visible in the cells corresponding to the student rows. A callout box labeled "Sparklines – Line Charts" points to the charts.

Student	Exam 1	Exam 2	Exam 3	Exam 4	Sparklines
Kreiger, Doris	87	90	79	96	
Oliviera, Manuel	92	94	85	97	
Kodeda, Adam	88	95	75	80	
Lange, Michael	85	87	87	88	
Taylor, Maurice	81	88	82	85	

Step 3: Click on the **Column** icon.

The screenshot shows a Microsoft Excel spreadsheet titled "First Quarter Exam Scores". The data consists of 8 rows of student names and their exam scores across four exams. Each row contains a sparkline chart in the "Sparklines" column. A callout box points to the "Column" icon in the "CHARTS" tab of the "SPARKLINES" ribbon. The callout box also contains the text: "Sparklines are mini charts placed in single cells." The "Column" icon is highlighted with a green box and an arrow pointing to it.

	A	B	C	D	E	F
1	First Quarter Exam Scores					
2	Student	Exam 1	Exam 2	Exam 3	Exam 4	Sparklines
3	Kreiger, Doris	87	90	79	96	
4	Oliviera, Manuel	92	94	85	97	
5	Kodeda, Adam	88	95	75	80	
6	Lange, Michael	85	87	87	88	
7	Taylor, Maurice	81	88	82	85	
8						

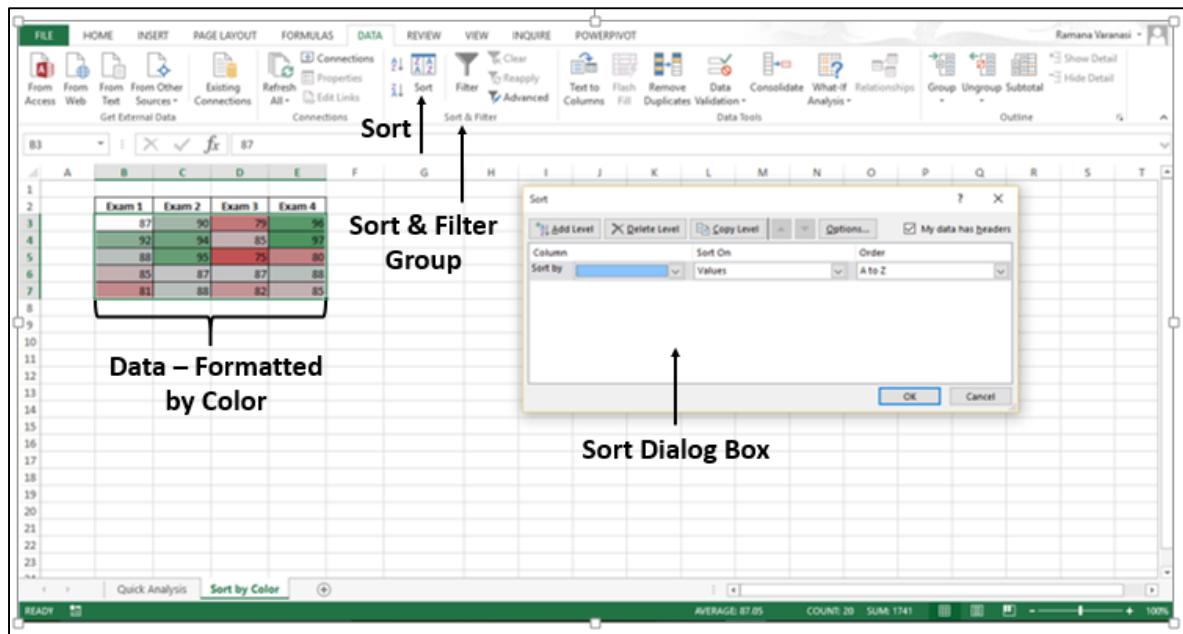
A line chart for each row is displayed.

8. Excel – Sorting Data by Color

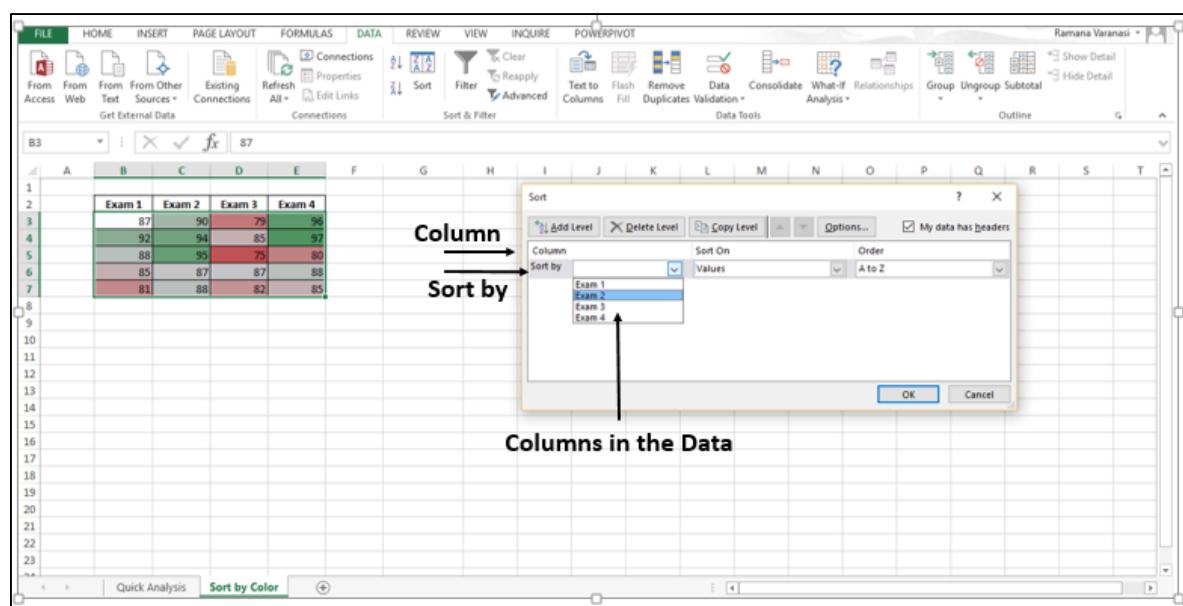
If you have formatted a table column, manually or conditionally, with the cell color or font color, you can also sort by these colors.

Step 1: Click on the **DATA** tab.

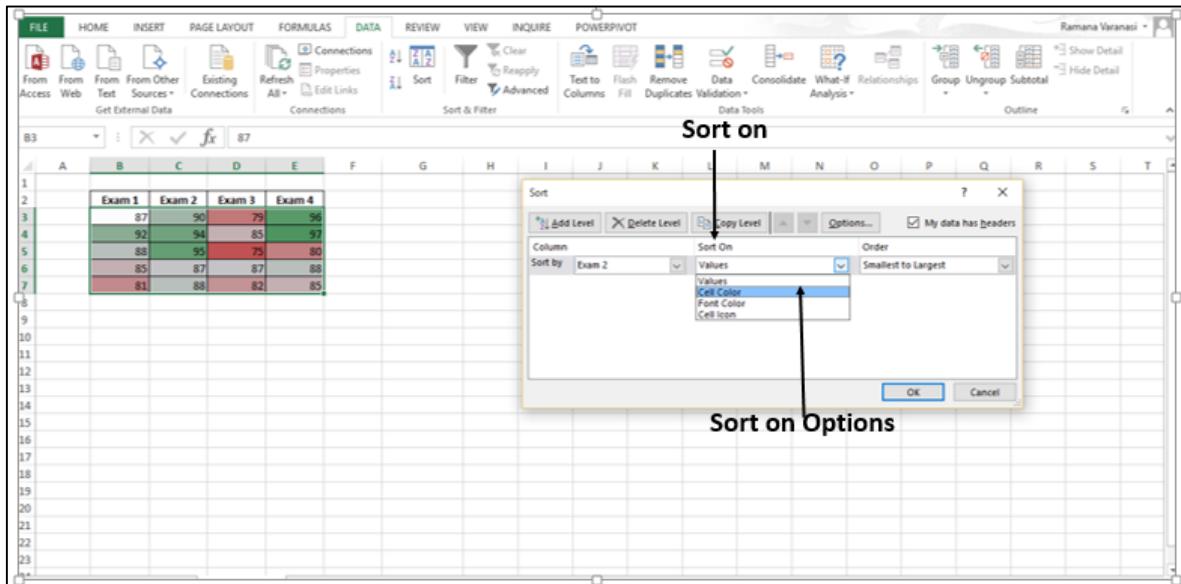
Step 2: Click on **Sort** in the **Sort & Filter** group. The **Sort** dialog box appears.



Step 3: Under the **Column** option, in the **Sort by** box, select the column that you want to sort. For example, click on Exam 2 as shown in the image given below.

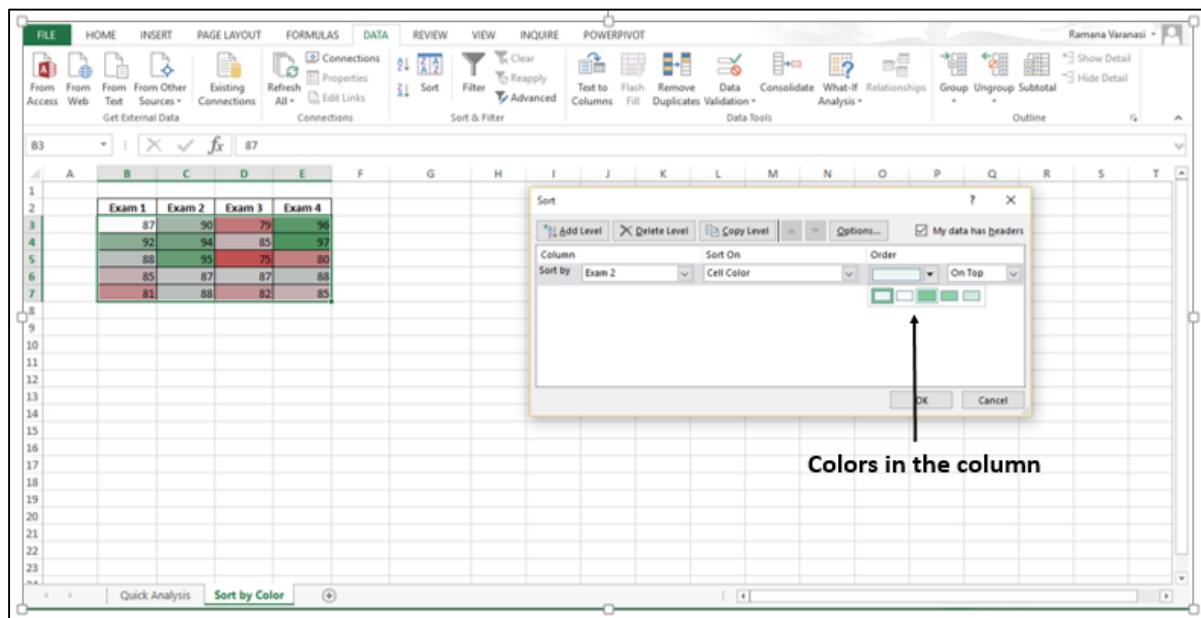


Step 4: Under the topic **Sort On**, select the type of sort. To sort by cell color, select **Cell Color**. To sort by font color, select **Font Color**.



Step 5: Click on the option **Cell Color**.

Step 6: Under **Order**, click the arrow next to the button. The colors in that column are displayed.



Step 7: You must define the order that you want for each sort operation because there is no default sort order. To move the cell color to the top or to the left, select **On Top** for column sorting and **On Left** for row sorting. To move the cell color to the bottom or to the right, select **On Bottom** for column sorting and **On Right** for row sorting.

The screenshot shows a Microsoft Excel spreadsheet with data in columns B through E. The first row contains headers: Exam 1, Exam 2, Exam 3, and Exam 4. The subsequent rows contain numerical values. A 'Sort' dialog box is open over the spreadsheet. In the 'Sort' dialog, under 'Sort On', 'Cell Color' is selected. Under 'Order', the dropdown menu is open, showing three options: 'On Top', 'On Top.', and 'On Bottom.' An arrow points from the text 'Sort Order' at the bottom right of the dialog to the 'On Bottom.' option in the dropdown menu. The 'OK' button is visible at the bottom right of the dialog.

	B	C	D	E
1	Exam 1	Exam 2	Exam 3	Exam 4
2	87	90	79	96
3	92	94	85	97
4	88	95	75	80
5	85	87	87	88
6	81	88	82	85
7				